

FACILITY STATUS CHANGE FORM (for DOE/RL-2010-34 Facilities)

Date Submitted: 12/18/2013 Originator: Clay McCurley Phone: 942-8928	Area: 100-D Facility ID: 183D Water Treatment Plant Action Memorandum: General Hanford Site Decommissioning Activities	Control #: D4-100D-004
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This form documents agreement among the parties listed below on the status of the facility D&D operations and the disposition of underlying soil in accordance with the applicable regulatory decision documents.

Section 1: Facility Status

- ☐ All removal actions require by action memo complete.
- ☒ Removal actions required by actions memo partially complete, remaining operations deferred.

Description of Completed Activities and Current Conditions:

Deactivation: Utility isolations were completed on the facility prior to demolition.

Decontamination and Decommissioning: The following hazardous materials were removed prior to facility demolition: batteries, light bulbs, oils, grease, mercury, refrigerant, and polychlorinated biphenyl (PCB) containing equipment. Hazardous material removal and waste disposition was performed in accordance with the *Removal Action Work Plan for River Corridor General Decommissioning Activities*, DOE/RL-2010-034. Regulated Asbestos-Containing Material (RACM) was removed from areas of the facility that were safe to access.

Demolition: Demolition of the facility (above and below grade) began in early 2013 and was completed on November 8, 2013. The debris was removed and disposed of at the ERDF. Presumed Asbestos-Containing Material (PACM) in areas unsafe to access could not be abated and was demolished with the facility.

Description of Deferral (as applicable):

Backfill is being deferred to FR to facilitate the remediation of WIDS Sites 100-D-31:11, 100-D-31:12, and 100-D-72 at the facility's western edge and to provide an area where clean backfill material from nearby WIDS site remediation activities can be directly placed, in lieu of intermediate stockpiling, and verified clean.

Section 2: Underlying Soil Status

- ☐ No waste site(s) present. No additional actions anticipated.
- ☒ Documented waste site(s) present. Cleanup and closeout to be addressed under Record of Decision.
- ☐ Potential waste site discovered during removal action. Waste site identification number <to be> assigned. Cleanup and closeout to be addressed under Record of Decision.

Description of Current/As-Left Conditions:

All parts of the facility were demolished to 3-ft below grade with the exception of the north clearwell which was left intact to provide habitat for bats. The below-grade flumes forming the western length of the clearwells were also left intact to provide habitat for bats. The floor of the south clearwell was perforated to ensure drainage and left in place with the side slopes at >3-ft below grade.

Identification of Documented Waste Site(s) or Nature of Potential Waste Site Discovery (as applicable):

WIDS Sites 100-D-31:11, 100-D-31:12, and 100-D-72 at the facility's western edge.

Section 3: List of Attachments

1. Facility Information
2. Photographs of the 183-D Water Treatment Plant
3. Ecological and Cultural Resources Review for Demolition of 183-D Facility in the 100-D Area

FACILITY STATUS CHANGE FORM (for DOE/RL-2010-34 Facilities)

4. 183-D Water Filter Plant - Filter Building and Pump Room Structural Inspection
5. EPA Concurrence that work is in compliance with NESHAP requirements
6. 183-D GPS Surveys

Rudy Guercia

DOE-RL (Lead Agency)

Date

12/18/2013

DISTRIBUTION:

DOE: Rudy Guercia, A3-04

Document Control, H0-30

Administrative Record, H6-08 (100-DR-1 OU)

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Sample Design/Cleanup Verification: Theresa Howell, H4-23

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D4 Project Facility Completion Form

Attachment 1

Facility Information (5 pages)

D4 Project Facility Completion Form

Facility Information

Introduction

This document provides information regarding the history, characterization, and final status at the completion of deactivation, decontamination, decommissioning, and demolition (D4) activities of the 183D Water Treatment Plant located in the 100-D Area as shown in Attachment 2, Figure 1.

Facility History

The 183D Water Treatment Plant, shown in Attachment 2, Figure 2, was constructed in the mid 1940s and chemically treated, filtered, and stored water for use within the 100-D Area, 100-F Area, and 100-H Area. The 181-D River Pump House provided raw Columbia River water to the 182-D reservoir and pump house. Approximately 100,000 gallons of this raw river water was pumped daily to the 183D facility. The water arrived at a reinforced-concrete distribution flume located between the head house and the flocculation chambers. In the flume, chlorine gas and aluminum sulfate were added to kill micro-organisms and facilitate the flocculation of suspended solids. The water was then processed in the flocculation chambers and subsidence basins before being piped to the filter house. Once in the filter house, the water received additional flocculating agents containing sodium carbonate, polyacrylamide, sodium sulfite, and sodium sulfate; and was then passed through the filters. After filtration, the water was transferred to the clearwells where it was treated with chlorine and stored for distribution. The water was used in reactor cooling and fire protection systems in the 100-D Area, 100-F Area, and 100-H Area until the plant was deactivated 1994 and permanently isolated in 2003.

Plans for the demolition of the 183D Water Treatment Plant began in 2009 and included a request for a bat study in support of the *Hanford Site Biological Resources Management Plan* (DOE/RL-96-32, Rev. 1) which specifies that roost locations are essential to the life cycle of bats and, protection from destruction and disturbance is necessary. Studies conducted in 2009 and 2010 led to publishing the *Evaluation of the 183D Water Filtration Facility for Bat Roosts and Development of a Mitigation Strategy* (WCH-438, Rev. 0) which, in March 2011, documented that various types of bats, including pallid bats which are listed by the state of Washington as a Priority Species, are roosting in the 183D head house, clearwells and flumes. To mitigate, the report recommended leaving a clearwell and constructing an alternative roost (Building 114-D) near the head house so that demolition activities would result in no net loss of habitat.

In August 2012, a significant colony of bats was discovered in the 183D flume. In light of the success realized with leaving the flume and clearwell at 183-F, the *Ecological and Cultural Resources Review for Demolition of 183-D Facility in the 100-D Area* (CCN 173687), provided in Attachment 3, was updated and included leaving the flume open with the north clearwell to provide no net loss of habitat.

Building Description

The 183D Water Treatment Plant was located approximately 1,510 feet west of the 105-D Reactor Building as shown in Attachment 2, Figure 1. It consisted of a head house, sixteen flocculation basins, sixteen subsidence basins, sixteen filters housed in the filter house, two clearwells, a pump house, and four small valve structures located immediately east of the clearwells. Each type of facility is described separately below, and the spatial relationship of the structures is depicted in Attachment 2, Figure 2.

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Head House

The 183D head house was a three-story steel-framed reinforced concrete and concrete block enclosed building that contained an elevator, conveyors, and chemical storage and transfer bins. It was approximately 36-ft wide by 140-ft long. The roof consisted of concrete panels covered by a built-up roofing system.

The ground floor of the head house consisted of a series of small, concrete block enclosed rooms including a chlorination room, a laboratory, restrooms, janitor rooms, an electrical switchgear room, and a locker room. Underneath the ground floor at the south end of the building was a conveyor that traveled from the railcar dump to an elevator that ran vertically up to a conveyor above the third floor. The second floor was a chemical mixing/makeup room containing eight solid chemical feeders. The balance of this floor was used to store wood pallets containing packaged chemicals. The third floor was primarily a storage room that contained eight steel storage bins for solid chemicals. These bins emptied into steel hoppers which extended down through the floor into a point directly above each of the solid chemical feeders. Above the hoppers was a belt that operated the length of the building taking chemicals from the elevator and emptying them into the various bins.

A 70-ft by 12-ft chlorine storage platform and a railcar receiving bay were attached to the exterior of the building. The chlorine storage platform contained a 23.5-ft by 9.25-ft by 4-ft concrete block structure and a 42-ft by 7.9-ft by 6.5-ft steel frame structure. The concrete block structure contained space for six chlorine tanks supported on wooden cradles. The railcar receiving bay was open at both ends and could handle one railroad car at a time. A concrete dock was used for unloading packaged material directly from railroad box cars, while bulk shipments could be unloaded by bottom dump cars or by scooping to the side into a bulk conveyor hopper under the track.

Water pumped from the Columbia River first entered the head house, where it was mixed with various reagents to promote the flocculation and precipitation of various undesired chemical constituents that could possibly foul piping in the "D" reactors. Water from the head house was then discharged to the flocculation basins via a flume.

Flocculation/Subsidence Basins

Sixteen open-topped reinforced-concrete flocculation basins parallel to one another received raw water mixed with reagents from the head house. Each had a 55,000 gallon capacity and contained an electrically-operated slow-turning steel paddle agitator, or flocculator. Each was connected to a 500,000-gallon open-topped reinforced-concrete subsidence basin. Water from the downstream (east) end of each subsidence basin discharged via an overflow trough into gravity filters located in the adjacent filter house.

Filter House

The filter house measured approximately 45-ft by 850-ft and consisted of concrete and cinderblock walls. The roof consisted of concrete panels covered by a built-up roofing system. The filter house contained sixteen two-section filter beds that had a total capacity of 48,000 gpm. The filter beds were supported on Wheeler bottoms consisting of pyramidal depressions formed in concrete, with a porcelain thimble outlet at the bottom of each depression. The depressions were filled with porcelain and earthenware spheres.

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Above these spheres was a 12-inch layer of gravel, then a 10-inch layer of sand, and finally a 20-inch layer of anthracite coal. Above the filter beds was a reinforced concrete frame and concrete block enclosure. Along one side of the row of filter beds was a concrete slab on which were located various metering devices, valves, and controls for the filter beds. Underneath this slab was a pipe gallery and underneath the pipe gallery were two parallel flumes. One flume was for effluent process water and the other for waste water. The flumes were not demolished. They were left in place to provide habitat for bats.

The filter house had not been used or maintained for many years and various sections of its roof had collapsed internally the structure rendering it unsafe to enter. A structural analysis, *183-D Water Filter Plant – Filter Building and Pump Room Structural Inspection* (CCN 166959), performed in mid 2013, determined the filter house was not safe to perform intrusive work scope. A copy of the structural analysis is provided as Attachment 4.

Pump House

The 183D pump house, located between the north and south clearwells, measured approximately 45-ft by 135-ft. It consisted primarily of below-grade reinforced concrete walls and floor, and a concrete roof covered with tar and gravel. Several small cinderblock structures on the roof comprised the battery house and the chlorine room.

The pump house originally contained ten electric pumps and six steam turbine pumps. Two pumps were used for backwashing the filter beds, four pumps were connected to the combined sanitary and fire protection system, and the remaining ten pumps handled the distribution of filtered water.

Overflow trenches of 20,000 gpm capacity ran along both walls of the pump room, below floor level, paralleling the two clearwells. An electrical switchgear room containing various electric meters and controls was located at the level of the pump house roof in the filter house. The electrical switchgear room was a steel-frame, reinforced concrete and concrete block structure with a precast concrete roof covered with tar and gravel surface.

A structural analysis, *183-D Water Filter Plant – Filter Building and Pump Room Structural Inspection* (CCN 166959), performed in mid 2013, determined the pump house was not safe to perform intrusive work scope however, non-intrusive entries for sampling were allowed in the electrical switchgear room provided qualified engineering personnel were consulted to ensure a safe pathway is used to access the area. A copy of the structural analysis is provided as Attachment 4.

Clearwells and Valve Houses

The 183D clearwells were two (north and south) 5,000,000-gal reinforced-concrete reservoirs, completely enclosed, and separated by the pump house. Each reservoir had a concrete slab roof supported by concrete pillars and covered with a tar and gravel surface. The north clearwell was not demolished. It was left in place to provide habitat for bats.

Water flowed from the clearwells to suction wells on either side of the pump house. The suction wells were approximately 5-ft lower than the clearwell bottoms. The water was then pumped to the "D" reactors by pumps housed in the pump house.

Four small valve houses were located east of the clearwells. The three northern-most valve houses were wood structures with dirt floors and the southern-most valve house had concrete walls and a wood roof.

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Radiological Scoping and Industrial Hygiene Baseline Surveys

Table 1 summarizes the industrial hygiene, radiological control, and asbestos samples collected in the 183D Water Treatment Plant.

Table 1: Summary of Characterization Surveys at 183D

Type	Date	Documented In	Results Summary
Asbestos	November 15, 2012	CCN# 167668	ACM indentified in: floor tile, roofing materials, mastic, TSI, mud, CAB, and caulking
IH Surveys and Beryllium Characterization	November 12, 2012	BFA-183D-12-001-Rev 1	Assessment documents the building is Be free.
Radiological Surveys	June 7, 2010 July 25, 2012 July 26, 2012 July 27, 2012 December 5, 2012 December 10, 2012	RSR-100N-10-1107 RSR-100N-12-1671 RSR-100N-12-1677 RSR-100N-12-1684 RSR-100N-12-2505 RSR-100N-12-2520	No contamination identified.

Radiological Contamination

The 183D facility was never posted for radiological conditions. Based on research of past facility operations, radiological contamination was not expected and various pre-demolition radiological scoping surveys identified no radiological contamination. As a result, it was determined that the facility did not have a radiological inventory sufficient to justify the calculation of a potential to emit (PTE) and the lead agency's (DOE) concurrence was requested and received in December 2012 (CCN 169109) that an emissions estimate is not required prior to performing removal actions. Since the 183D facility had no radiological contamination, there was no need to perform a post-demolition using the Global Positioning Environmental Radiological Surveyor (GPERS).

Asbestos

Inspections and sampling conducted in the 183D facility from July through November, 2012 identified various areas that contained ACM. The report, *Asbestos Inspection and Sampling Report for the 183-D Water Treatment Plant* (CCN 167668) documented that almost half of the 72 samples collected throughout the facility contained asbestos at greater than one percent. In the filter building and pump house, samples could not be collected and pre-demolition abatement could not be performed due to danger from significant structural degradation. This is documented in the *183D Water Filter Plant – Filter Building and Pump Room Structural Inspection* (CCN 166959), provided as Attachment 4. A close inspection of Attachment 2, Figure 3 shows where rectangular concrete roof panels have, over time, collapsed from the roof to the interior floor of the filter building. EPA inspected the facility in August 2012 and concurred that these areas were structurally unsound and that plans to demolish these buildings without asbestos abatement are in compliance with asbestos NESHAP requirements (CCN 169028). A copy of this correspondence with EPA (CCN 169028) is provided as Attachment 5. Asbestos abatement, however, was performed in all areas where the ACM could be safely accessed.

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Beryllium

The 183D facility was listed on the Hanford Site Beryllium Controlled Facilities List however, the facility was sampled prior to demolition and down-posted as a beryllium-clean facility.

Associated WIDS Sites

The only Accepted WIDS sites associated with the 183D facility include the 100-D-31 (183D process sewer pipelines) and 100-D-72 (183D acid facility). Portions of these WIDS sites were removed by D4 to the extent of the 183D excavation. Remaining portions of the sites will be addressed with the remediation of the WIDS sites. Two Underground Injection Control (UIC) wells, UU1 and UU231, located on the west side of the 183D facility were also removed by D4 to the extent of the 183D excavation. These UICs will also be addressed with the remediation of the WIDS sites.

Civil Survey Information

A pre-demolition Global Positioning System (GPS) survey of the 183D Water Treatment Plant was performed in October 2011 and a corresponding post-demolition GPS survey was completed in November 2013. Copies of these surveys are provided in Attachment 6.

Anomalies Discovered During Demolition

No anomalies were discovered during D4 of the 183D Water Treatment Plant.

Final Building Status and Underlying Soil

All D4 activities were performed in accordance with applicable environmental documentation, including the *Removal Action Work Plan for River Corridor General Decommissioning Activities* (DOE/RL-2010-34). Demolition of the above-grade and below-grade structure to 3-ft below-grade was completed on November 8, 2013. The north clearwell and below-grade flume that runs along the west side of the clearwells were left in place as bat habitat. Openings for bats were left as specified in the *Ecological and Cultural Resources Review for Demolition of the 183-D Facility in the 100-D Area –Update- (11-ER-067b, HCRC #2011-100-056)*, provided as Attachment 3, in the south end of the flume and near the south end of the north clearwell. The floor of the south clearwell was punched with several holes to ensure drainage and left in place with the side slopes at >3-ft below grade.

Size reduction of demolition debris and loadout activities spanned the entire time period. The demolition debris was loaded into roll-off containers and sent to the Environmental Restoration Disposal Facility. No post-demolition GPERS surveys were performed because the facility was radiologically clean. A post-demolition Global Positioning System (GPS) survey was taken to document below-grade structures remaining (Attachment 6). The area was visually examined on November 20, 2013 and no unusual stains or anomalies were observed. Backfill of the excavation was deferred to facilitate the remediation of nearby WIDS sites and backfill activities.

Table 2 summarizes the contaminants of concern for facility demolition and the Management Practices implemented to minimize the spread of those contaminants.

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Table 2: Contaminants of Concern for Facility Demolition

Contaminant of Concern	Management Practice
Friable and Non-friable Asbestos Containing Material (ACM)	Asbestos Containing Material (ACM) was the only contaminant of concern for demolition of the 183D Water Treatment Plant. The ACM was in the form of friable and non-friable category I and category II materials. Facility demolition was performed under asbestos controls as defined in work package 100 11 01 05 003. Abatement activities were performed at the direction of an asbestos competent person. ACM was abated where it could be safely accessed. Presumed Asbestos Containing Material (PACM) identified in the filter house and pump house was unsafe to access and could not be abated prior to demolition.

D4 Project Facility Completion Form

Attachment 2

Photographs of the 183D Water Treatment Plant (4 pages)

D4 Project Facility Completion Form

Figure 1. Aerial View of 100-D in October 2012 (facing north).

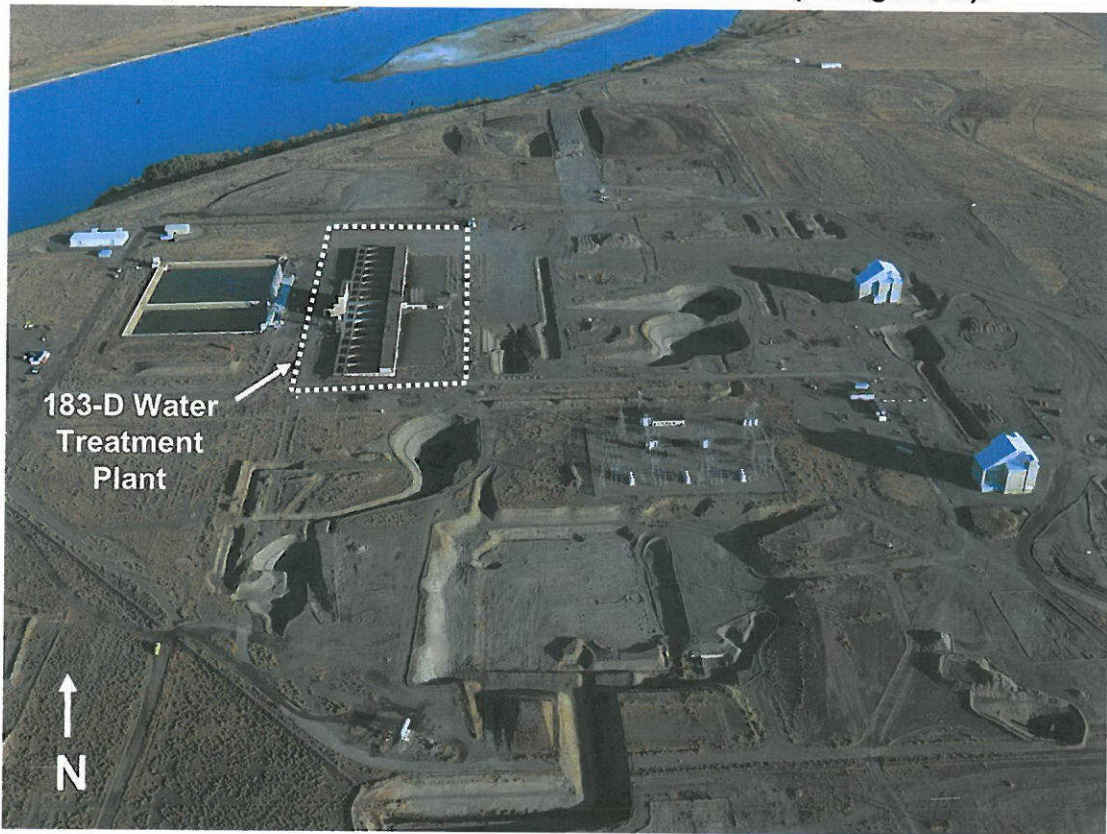


Figure 2. Aerial View of the 183D in October 2012 (facing north).

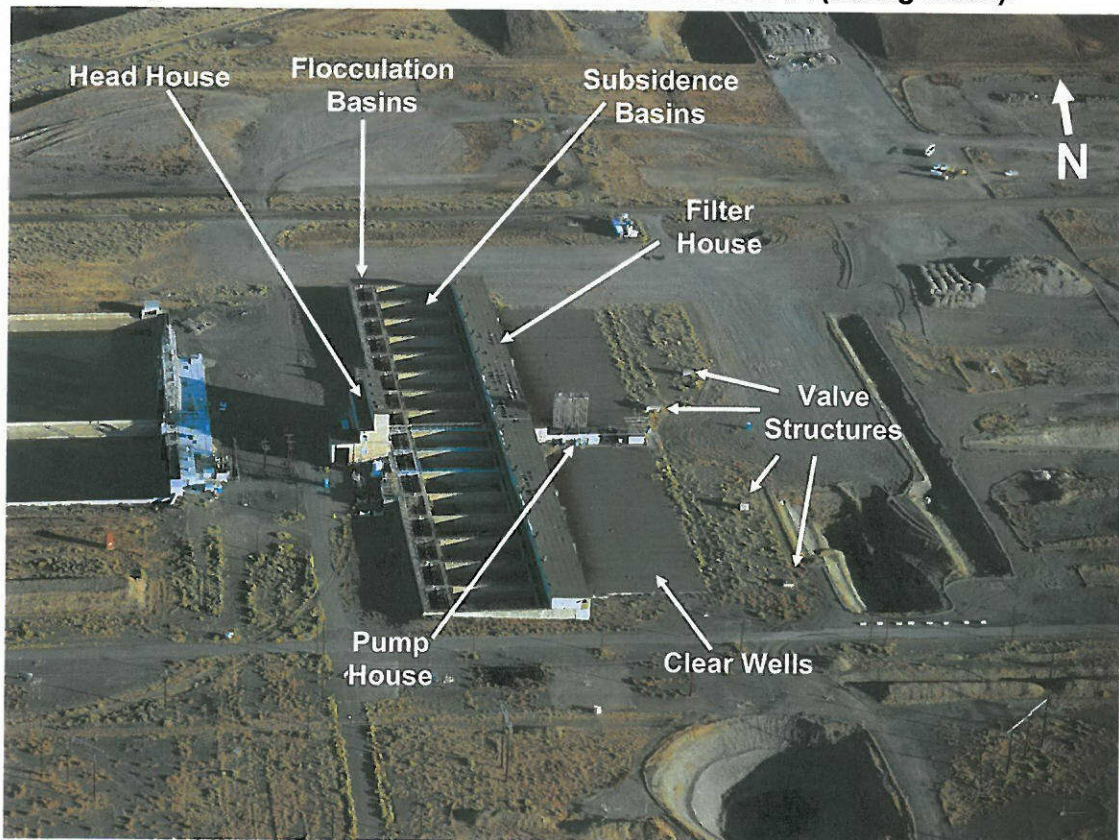
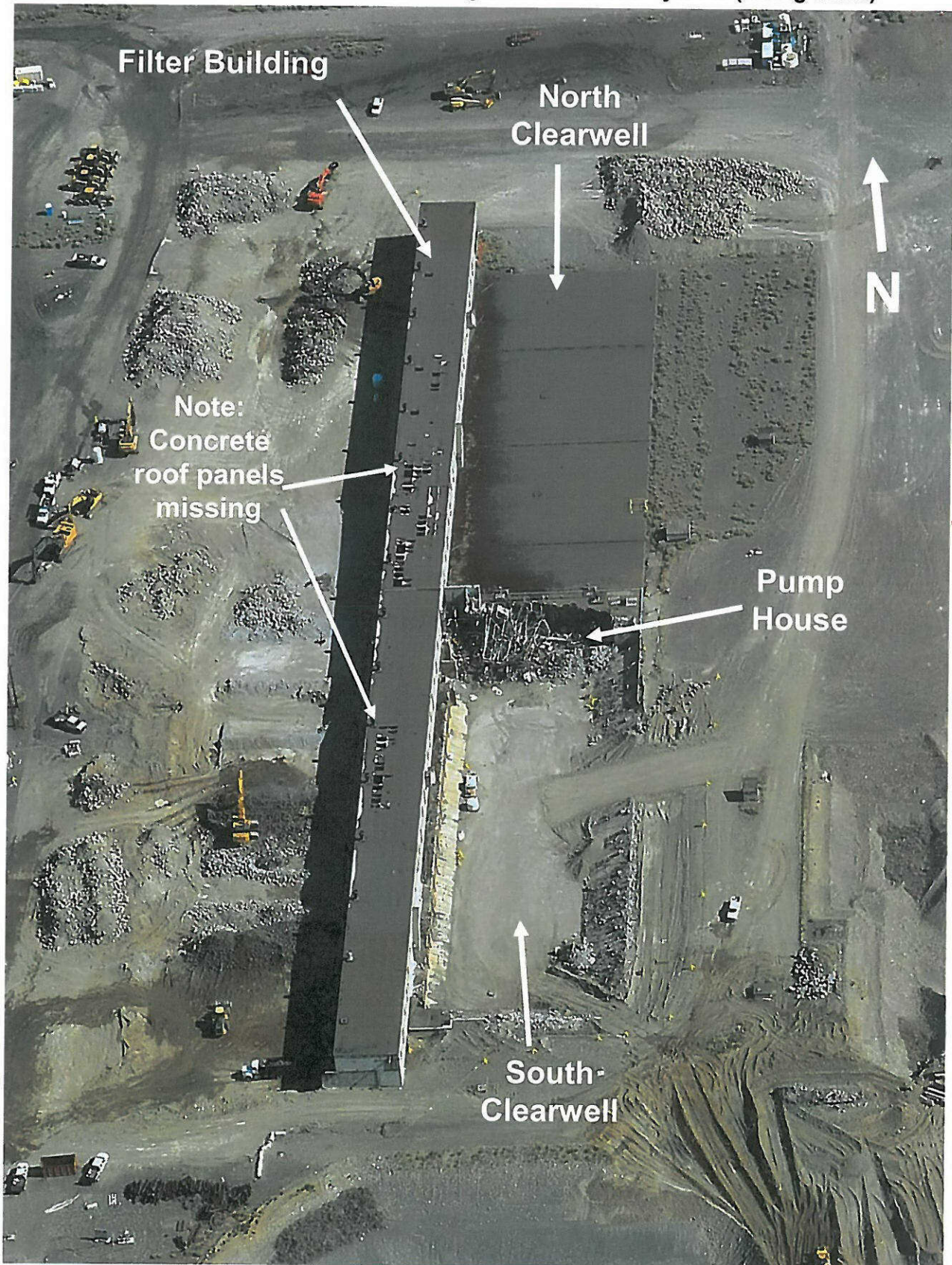


Figure 3. Aerial View of 183D During Demolition in July 2013 (facing north)

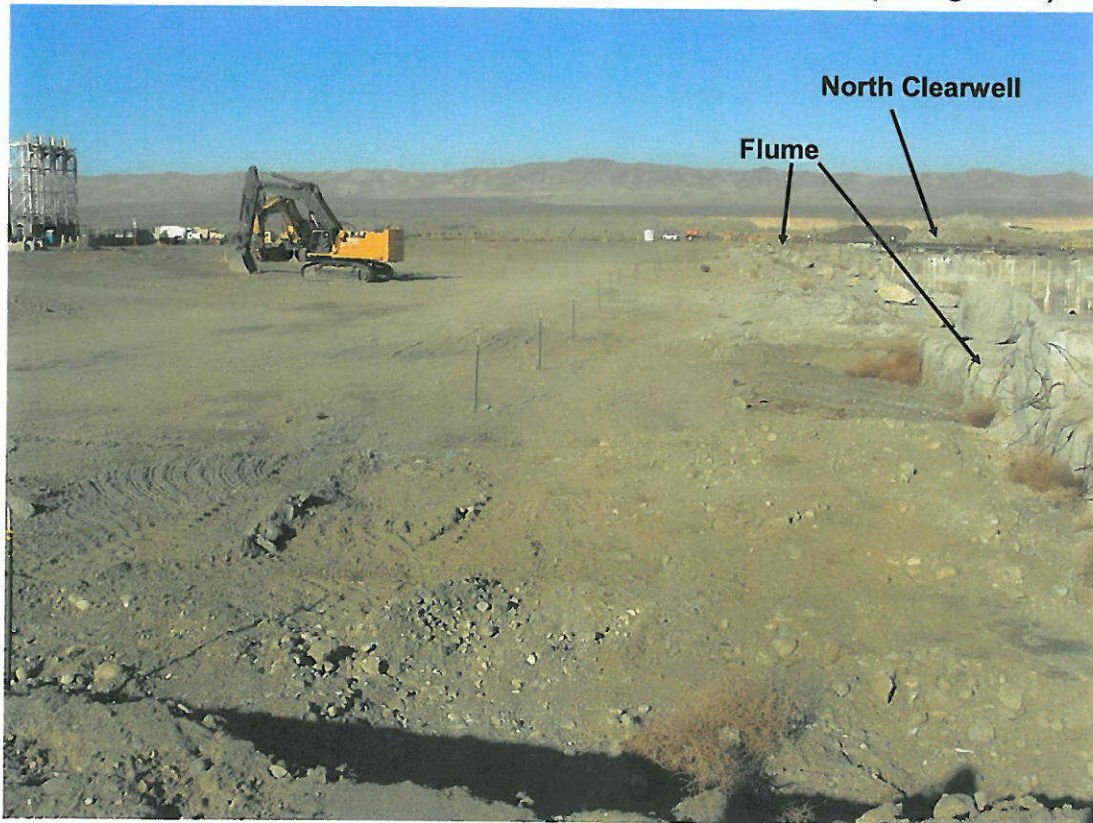


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Figure 4. Aerial View of 183D on November 20, 2013 (facing south)

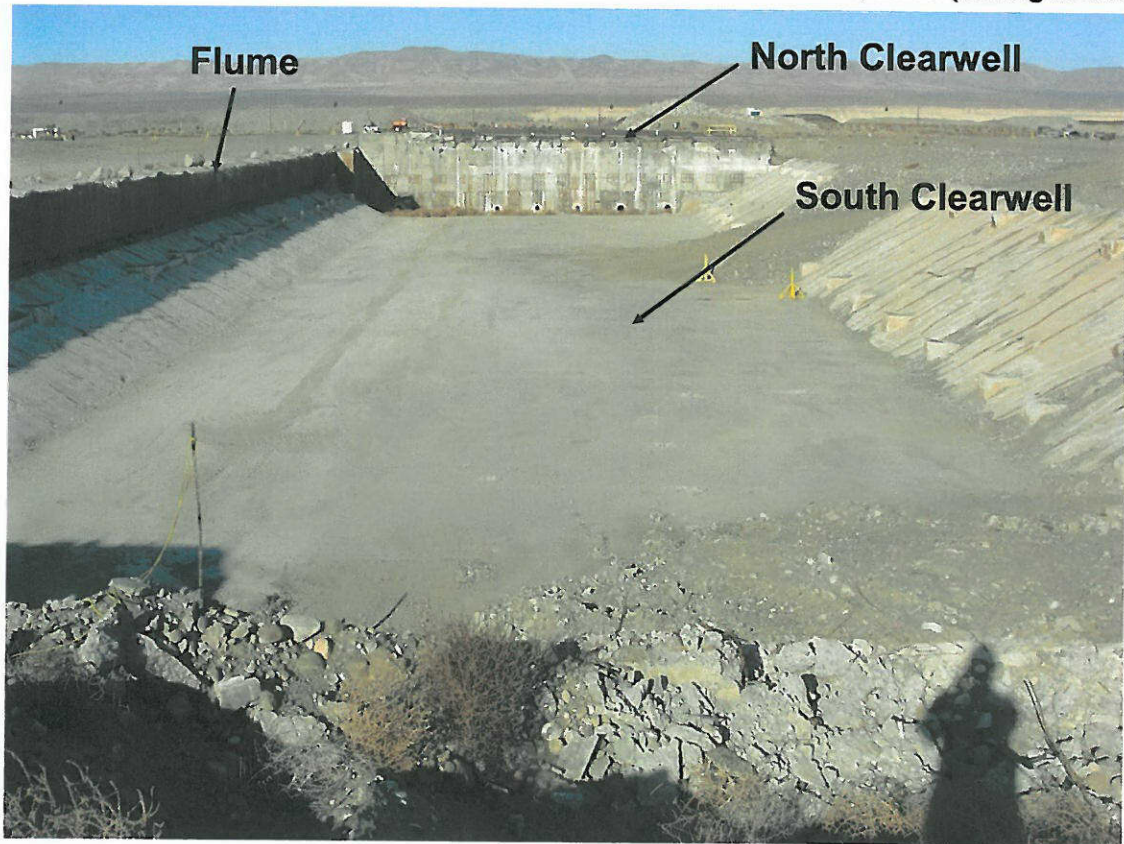


Figure 5. Ground Level View of 183D on October 20, 2013 (facing north)



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Figure 6. View of 183D Clearwells and Flume on November 20, 2013 (facing north).




Attachment 3

Ecological and Cultural Resources Review For Demolition of the 183-D Facility in the 100-D Area (6 pages)

173687

WCH Washington
Closure
Hanford**Interoffice Memorandum**

TO: M. E. Allen, X9-08**DATE:** November 5, 2013**COPIES:** M. E. Allen, X9-08
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E. M. Weiss, H4-21
Records and Document Control H4-11**FROM:** J. E. Thomson
Environmental Services
H4-21/509-372-9029
11/5/13**SUBJECT: ECOLOGICAL AND CULTURAL RESOURCES REVIEW FOR DEMOLITION OF THE 183-D FACILITY IN THE 100-D AREA -UPDATE- (11-ER-067b; HCRC #2011-100-056)**

This memo is in response to your October 24, 2013, request for an updated Ecological and Cultural Resources Review for the project to demolish the 183-D Facility in the 100-D Area. This activity will include hazardous material removal, demolition, stockpiling, backfilling, recontouring/revegetation; and load out of the 183-D filter building, flocculation basins, sedimentation basins, head house, south clearwell, associated systems, structures and components. The footprint of the 183-D facility is approximately 24,300 m² (6 acres). See attached map for project location and boundaries.

Bat habitat mitigation scope includes the following:

- Identifies leaving the north clearwell (with hatch open closest to pump room on east side of clearwell) and the entire waste/effluent flumes (runs north/south along entire length of existing clearwells) as mitigation for bats. Leave an opening into the waste flume at the south end.
- Install bat habitat signage and fencing around retained bat mitigation structures at 183-D.

This review is valid for one year from the publication date above.

Ecological Review 11-ER-067b

WCH Natural Resources staff performed an evaluation of the project area to record site specific biological resources. No adverse impacts to ecological resources are anticipated during this work scope if the following recommendations provided are followed.

The 183-D Water Filtration Facility was formerly used to supply cooling water for the reactor, drinking water and fire protection water to 100-D facilities.

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Due to the long term inactive status of the facility, evaluations were conducted from 2009 to 2011 to determine if any part of the facility is being used as roosting habitat by bats. Evaluations concluded that several species of bats are using the facility, primarily the head house, including Yuma myotis (*Myotis yumanensis*) and pallid bats (*Antrozous pallidus*). Pallid bats and roosting concentrations of Myotis bats are listed by the state of Washington as Priority Species; therefore mitigation is required according to DOE/RL-96-32 to maintain the viability of the colonies. During August of 2012, a Myotis bat (likely Yuma myotis) maternity colony was discovered in the north half of the filter building's pipe gallery, numbering at an estimated 1,000 or more bats. These had not been discovered during previous investigations due to building access restrictions.

To mitigate for lost habitat from the demolition of the facility, the north clearwell will be preserved along with previously identified structures, in addition to the construction of an alternate roost site near the head house. The alternate roost (114-D) construction was completed in September 2011, and is expected to provide suitable habitat for the pallid bat maternity colony. Leaving the north clearwell in place will be critical, as Yuma myotis bats are known to roost in clearwells (see WCH-438).

Demolition of the head house shall not be initiated between March through October, while bats are using the facility. Provided that the head house can be demolished by the end of February, there will be no other restrictions regarding the timing of demolition of the rest of the facility. Please contact WCH Natural Resources staff James Bernhard (509-521-7920) for project schedule changes to ensure the timing of demolition does not impact the bats. After the facilities have been demolished, a hatch on the remaining clearwell will need to be opened to provide access for the bats so that the clearwell may provide future habitat. At the completion of the project, construction of a single-strand wire fence around the southern clearwell will be required in addition to warning signs signifying the area is a sensitive habitat.

The ground surfaces surrounding the facility are comprised of compacted rocky substrate, and are sparsely vegetated in areas by an overstory of gray rabbitbrush (*Chrysothamnus nauseosus*) and Russian thistle (*Salsola kali*) with an understory of cheatgrass (*Bromus tectorum*).

All fine grain material from the stockpile area must be salvaged and stockpiled separately and will be used to top-dress the site prior to revegetation. All compacted soils must be ripped to a depth of no less than 0.3 m (1 ft). These actions will facilitate a successful revegetation process.

Migratory birds and their active nests are protected from disturbance by the Migratory Bird Treaty Act of 1918. Nesting migratory birds may be encountered within project boundaries anytime throughout the nesting season (mid-March through July). Personnel will need to be made aware of this potential, and instructed to watch for nesting behavior (e.g., birds refusing to leave a project area, entering and exiting equipment, feigning injury, carrying materials, etc.). **A survey of these locations will be necessary for any activity conducted during the nesting season. Additional surveys will be required if project activities remain inactive for one week or longer during the nesting season. Please contact James Bernhard (509-521-7920) at least one week prior to schedule a survey. If any active nests or nesting behavior is observed, suspend work immediately and contact James Bernhard for mitigation actions.**

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WCH Natural Resources staff urges projects to perform daily inspections of equipment that are in use and bi-weekly (start and end of work week) inspections for stationary equipment during the nesting season. Disassembling nests before they become active is the best way to prevent project delays associated with active nests. Project personnel should be wary of any collection of materials (e.g., sticks, grass, plastic, twine, and paper), as these may become active nests within a couple days. Project personnel should contact WCH Natural Resources staff to conduct a preliminary survey at least 1 month before activities such as demobilization, to eliminate or isolate possible nesting locations that could delay project activities.

Project personnel are not authorized to handle or disturb an active nest once it has been established. If it is suspected that a nest is no longer active, please contact WCH Natural Resources staff to schedule an exit survey to clear equipment or project activities for continued use or operation. Project personnel are not authorized to deem a nest inactive.

If workers encounter wildlife on the job-site, it is important to contact WCH Natural Resources lead (James Bernhard) for appropriate resolution of any potential issues related to ecological resources. The WCH Natural Resources staff will evaluate whether a situation involving wildlife or plants could pose a potential concern for regulating agencies and/or DOE.

If there are any changes in the scope of activities that could result in disturbances outside of the description of this project, please submit a new WCH-EE-106 form to email address WCH Ecological and Cultural Review Requests and reference 11-ER-067b to schedule a follow-up Ecological Resources Review.

Cultural Review (HCRC #2011-100-056)

The project area has received previous ground disturbance from the initial construction and operations within the 100-D/DR Area of the Hanford Site. Based on the absence of historic properties, the project scope of work, previous ground disturbance, and the location of project activities within disturbed areas, a finding of "No Adverse Effect" was sent to the RL Cultural and Historic Resources Program Staff. On February 3, 2012, the DOE-RL Cultural and Historic Resources Program Staff responded and determined, per 36CFR800.3(a)(1), this project will have "No Adverse Effect" on historic properties. Project activities as described above will be conducted in areas that do not require cultural resources monitoring.

If there are changes in the scope of activities that could result in disturbances outside of the description of this project, please contact LeAnn Purtzer (509-823-0284) or Sydelle Harrison (541-969-8736) of Washington Closure Hanford's Cultural Resources Staff and submit a new WCH-EE-106 form to WCH Ecological and Cultural Review Request for a follow-up Cultural Resources Review.

Although no impacts to cultural resources are anticipated, all workers must be directed to watch for cultural materials (e.g., bones, stone tools, mussel shell, cans and bottles) during all work activities. If any cultural materials are encountered, work in the vicinity of the discovery must stop until a Cultural Resources Specialist has been notified, the significance of the find assessed, appropriate Tribes

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notified, and if necessary, arrangements made for mitigation of the find. In the event of any discoveries, please contact Jill Thomson (509-372-9029).

Guidelines for the Unanticipated Discovery of Cultural Resources during Remediation Activities

The following guidelines are the actions to be performed in the event cultural resources are encountered during project activities. The guidelines contain information on recognizing cultural resources, and on- and off-site responsibilities in the event of a cultural resource discovery.

Recognizing Cultural Resources

A cultural resource is an item of historical, traditional, or cultural importance. The item could be prehistoric or historic. Examples include:

- A multi-species accumulation of shell (shell-midden) with associated bone, stone, burned rocks or charcoal.
- Bones that appear to be human or animal bones associated with a shell-midden (i.e. with associated artifacts or cooking features).
- An area of charcoal or very dark stained soil with associated artifacts.
- Artifacts made of chipped or ground stone (i.e. an arrowhead) or an accumulation (more than one) of cryptocrystalline stone flakes (lithic debitage).
- Clusters of tin cans or bottles, or agricultural equipment that appears to be older than 50 years.

ON-SITE RESPONSIBILITIES

STEP 1: STOP WORK IMMEDIATELY. If any employee, contractor or subcontractor believes that he or she has uncovered any cultural resource during remediation related activities, all work adjacent to the discovery must stop. The discovery location should not be left unsecured at any time.

STEP 2: NOTIFY MONITOR. If there is an archaeological monitor for the project, notify that person. If there is a monitoring plan in place, the monitor will follow its provisions. If an archaeological monitor is not available contact the WCH Environmental Services Manager.

STEP 3: NOTIFY PROJECT MANAGEMENT IMMEDIATELY. Contact the WCH Environmental Services Manager:

Jill Thomson
Office: 509-372-9029
Cell: 509-845-9455

STEP 4: WCH PROJECT MANAGEMENT WILL CONTACT THE DOE/RL CULTURAL RESOURCE MANAGER.

The WCH Environmental Services Manager or Cultural Resource Specialist will contact the DOE Cultural Resources Program Manager to inform them of the discovery:

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Mona Wright

Office: 509-376-4069

Cell: 509-392-2923

If you can't reach the WCH Environmental Services Manager or the DOE Cultural Resources Program Manager, contact your project's assigned Cultural Resources Specialist: LeAnn Purtzer (509-823-0284 or Sydelle Harrison (541-969-8736).

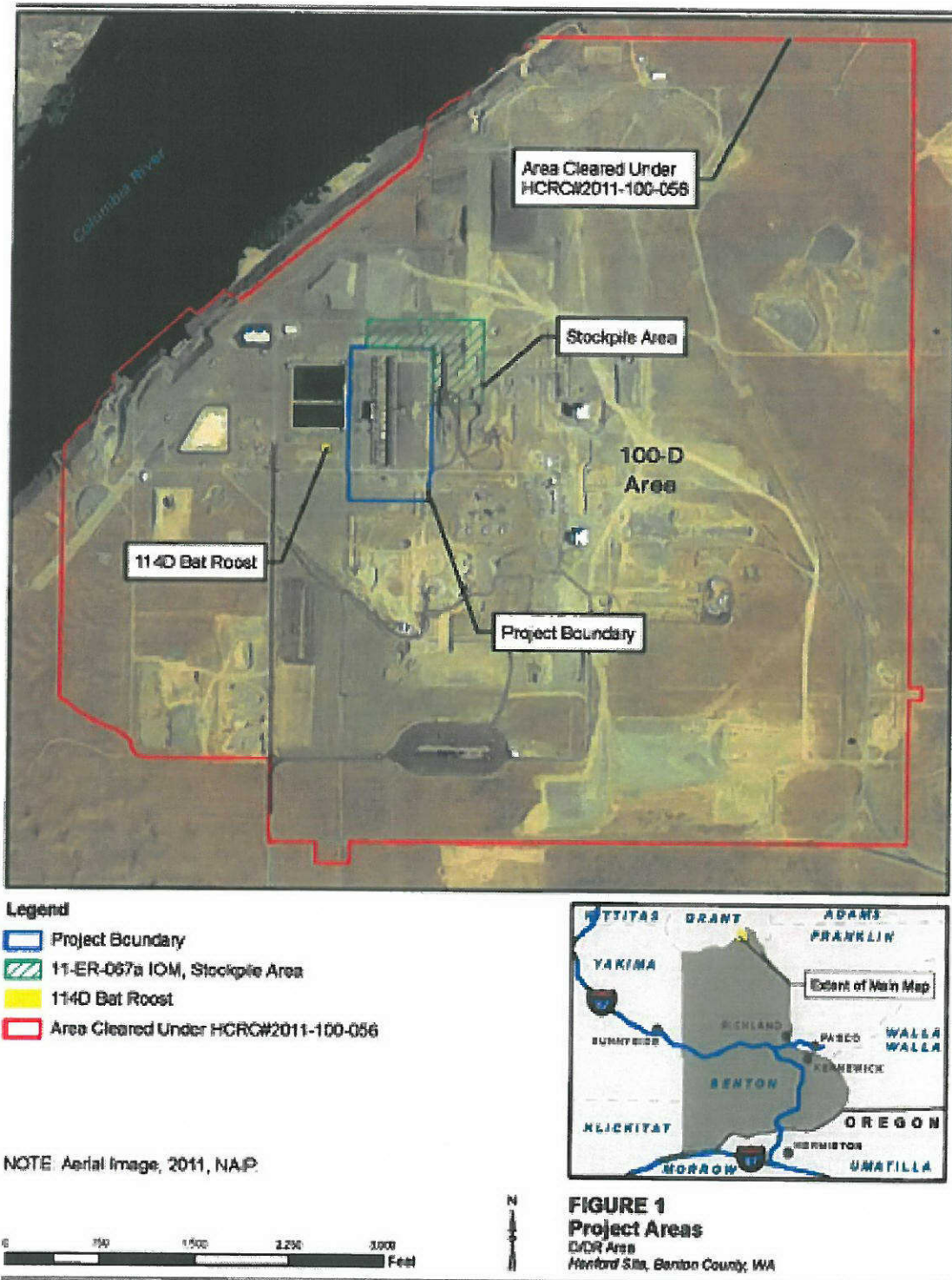
The Cultural Resources Review was prepared by Jim Sharpe, who meets the Secretary of the Interior's Standards for Professional Archaeologists.

JGL: LCP

Attachment(s): Map

D4 Project Facility Completion Form

M. E. Allen
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D4 Project Facility Completion Form

Attachment 4

183-D Water Filter Plant – Filter Building and Pump Room Structural Inspection (13 pages)

WCH Washington
Closure
Hanford

166959

Interoffice Memorandum

TO: M. E. Allen X5-51

DATE: August 16, 2012

COPIES: See Below
Document Control H4-11

FROM: P. P. Santos
Engineering Services
H4-20/372-9069

SUBJECT: 183-D WATER FILTER PLANT - FILTER BUILDING AND PUMP ROOM
STRUCTURAL INSPECTION

Note: Supersedes previously released IOM, CCN 166299

REF: 1) Drawing No.: W-71748 , "Hanford Engineer Works Filter Plant Bldg 183-D Key Plan Concrete."

A walk down was performed on May 03, 2012 to determine the structural adequacy of the 183-D Water Filter Plant – Filter Building and Pump Room. The primary purpose for the walk down was to determine worker safety for IH sampling. The area was assessed for the possibility of performing routine work to prepare the building for eventual Decontamination and Demolition. Attachment E details the results of the structural evaluation. Figure 1 shows the path taken to the electrical room during the walk down.

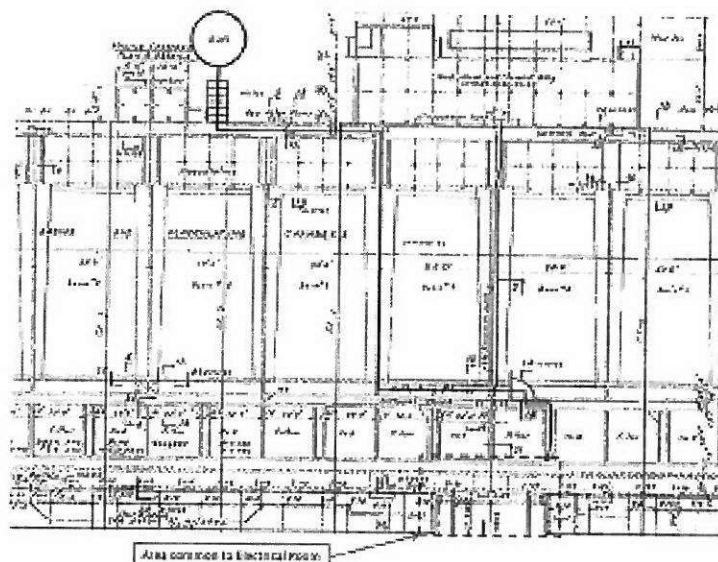


Figure 1 – 183-D Walk Down Path to Filter Building, and Pump Room and Electrical Switchgear

D4 Project Facility Completion Form

166959

M. E. Allen

Page 2

The Filter Building, and Pump Room and associated Electrical Switchgear Room were assessed. In conjunction with the attachments, below are comments from the evaluation.

- **EXTERIOR STRUCTURE, PATHS AND WALKWAYS** – The walkways exhibit concrete scaling due to the being exposed to a corrosive environment. Some of the walkways exhibit concrete spall with exposed rebar. The rebar common to these areas exhibited moderate corrosion. There are some wooden stairs that were NOT secured properly that are tripping hazards.

Based on my inspection, this area is safe to perform intrusive work scope with the approval of the Project Safety Representative (PSR).

- **FILTER BUILDING** – The masonry walls appear to be structurally adequate. These walls did NOT exhibit cracking in the grout NOR did they exhibit excessive deflection.

The pre-cast concrete roof panels exhibit severe degradation indicative of a structure that has been exposed to a corrosive environment. There is exposed rebar and significant deflections of the panels. In some cases, large pieces of the concrete panels have become detached and have fallen to the Filter Building floor. The panels also exhibited discoloration that is indicative of a potential chemical attack. These areas had "white stains" on their surfaces.

There were areas that had water pooled on the ground. The area common to these wet areas did NOT exhibit structural degradation.

There were also areas that exhibited biological waste. The area common to these hazard areas did NOT exhibit structural degradation.

Based on my inspection, this area is not safe to perform intrusive work scope.

- **PUMP ROOM** – The masonry walls appear NOT to have structurally detrimental issues. These walls did NOT exhibit cracking in the grout nor did they exhibit excessive deflection.

The pre-cast concrete roof panels exhibit severe degradation. The rebar of these panels were exposed to the environment. There were also panels which exhibited discoloration. These areas had "white stains" on its surface.

Based on my inspection, this area is not safe to perform intrusive work scope.

- **PUMP ROOM BASEMENT AND ELECTRICAL SWITCHGEAR ROOM** - The concrete walls and roof exhibited mild discoloration but did NOT exhibit significant structural degradation.

There were concrete and metal stairs that did not exhibit significant structural degradation.

D4 Project Facility Completion Form

166959

M. E. Allen
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Note that picture E3 showed particulates in the air. The area should be assessed accordingly to ensure personnel safety.

Based on my inspection, this area is not safe to perform intrusive work scope due to degradation of the above-grade Pump Room.

A fall hazard exists associated with the wooden and metal hand rails at the exterior of the building. The metal handrails appear to meet the requirements of WCH procedure SH-1-3.5, *Fall Prevention/Fall Protection* (OSHA 1926.502) and appear to have NO significant degradation. The wooden hand rails need to be evaluated and repaired as required. Note that access was blocked to reach the hand rails for a proper evaluation. Safety personnel are needed for the evaluation.

Conclusion: Intrusive work scope, such as prepping for demolition, asbestos abatement, and hazardous material removal, are NOT allowed to be performed in the Filter Building, Pump Room and Electrical Switchgear Room because of the significant structural degradation. Non-intrusive entries for sampling are allowed in the Electrical Room area since it did NOT exhibit significant structural degradation; however, an alternate path needs to be taken. Consult qualified Engineering personnel for further evaluation of the alternate path.

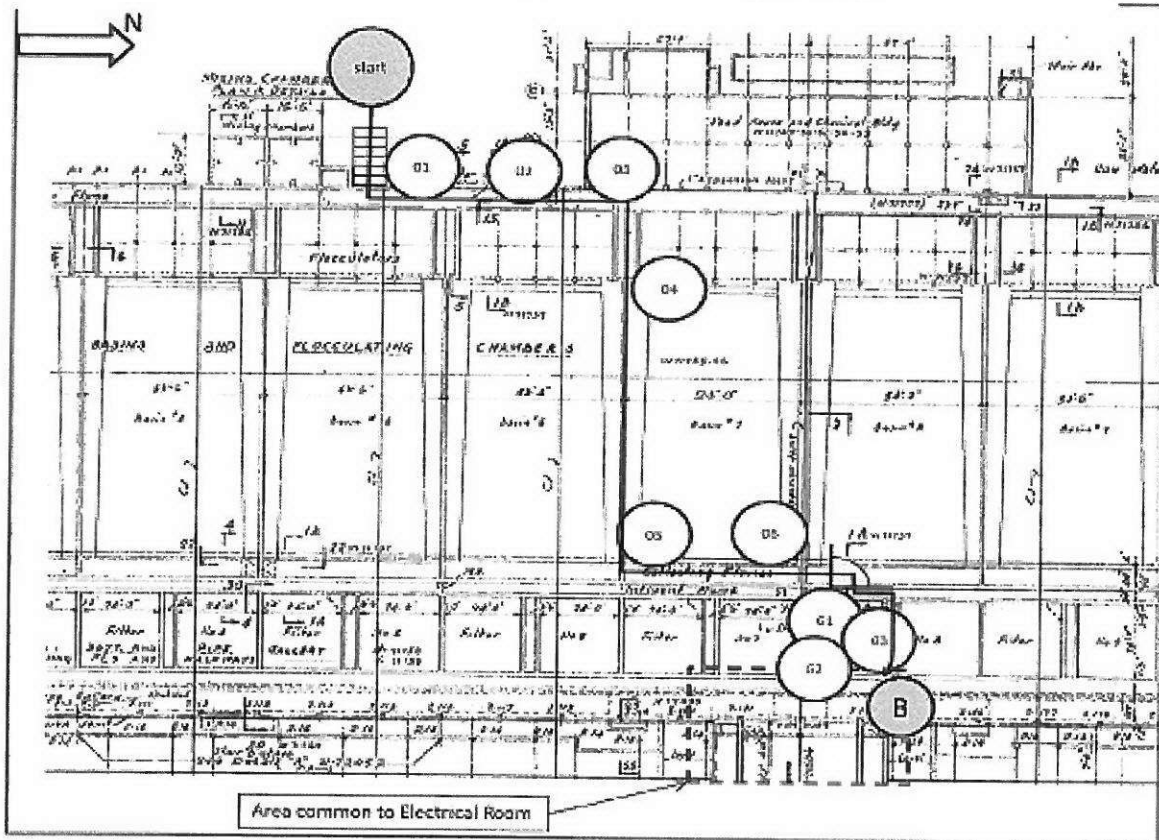
Attachments: A) Building Exterior Pictures
 B) Filter Building Pictures
 C) Pump Room Pictures
 D) Pump Room Basement and Electrical Switchgear Room Pictures
 E) 183D Evaluation Checklist

Copies (w/a)

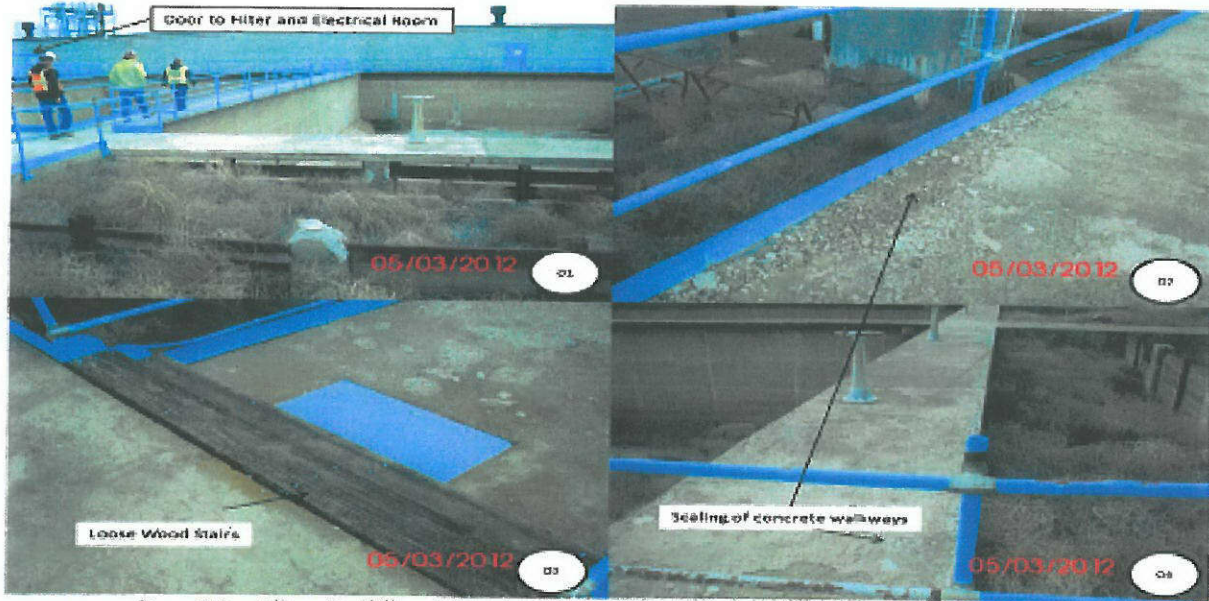
M.E. Allen X5-51
J. C. Danley X5-51
R.G. Gothard X5-50
R.S. Hobson X5-50
M.S. Kobierowski X5-50
D. J. McBride L7-11
P. P. Santos H4-20
C.P. Strand L7-11
R. F. Trevino X5-50
D.J. Warren X5-51
J. N. Winters L7-11
Document Control H4-11

ATTACHMENT A – BUILDING EXTERIOR PICTURES

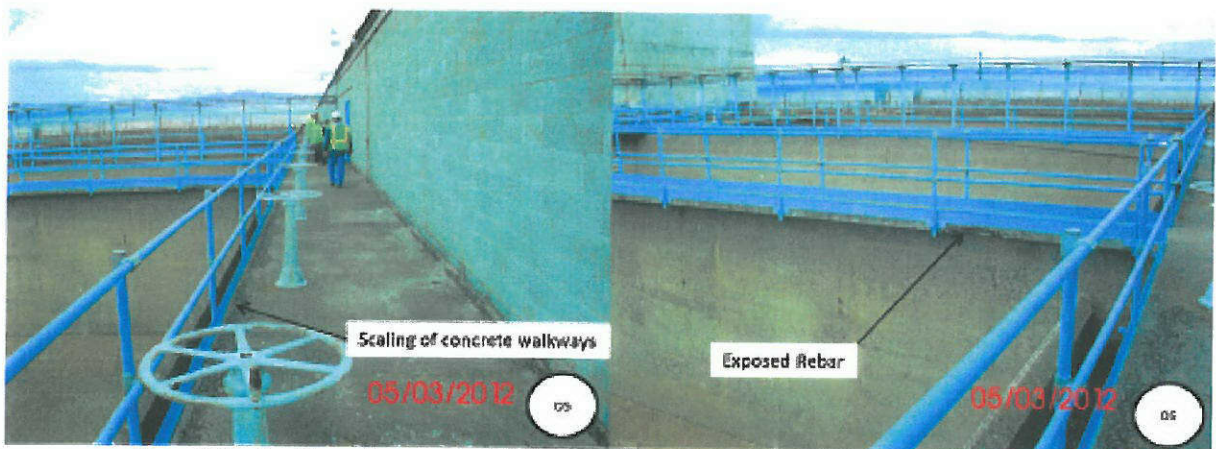
Figure 1 - Exterior Building and Filter Room Inspection Map



Reference Figure 1 for Locations



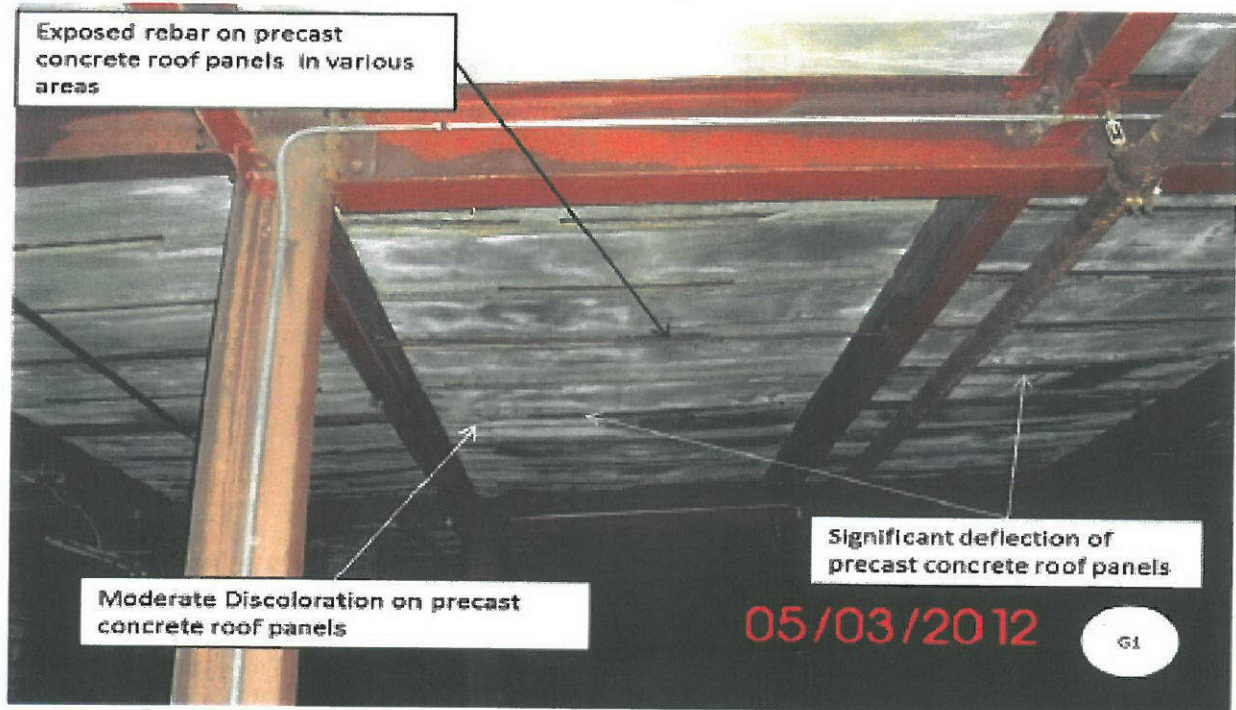
- Item O1* – Filter Building Masonry Wall with NO significant Structural Degradation
- Item O2* – Scaling of Concrete Walkway
- Item O3* – Loose Wooden Stairs
- Item O4* – Scaling of Concrete Walkway



- Item O5* – Scaling of concrete Walkways (Note that metal handrails do NOT exhibit structural degradation)
- Item O6* – Concrete Spall on Walkway with exposed rebar

ATTACHMENT B – FILTER BUILDING PICTURES

Reference Attachment A - Figure 1 for Locations



Item G1 – Significant structural degradation of concrete precast roof panels

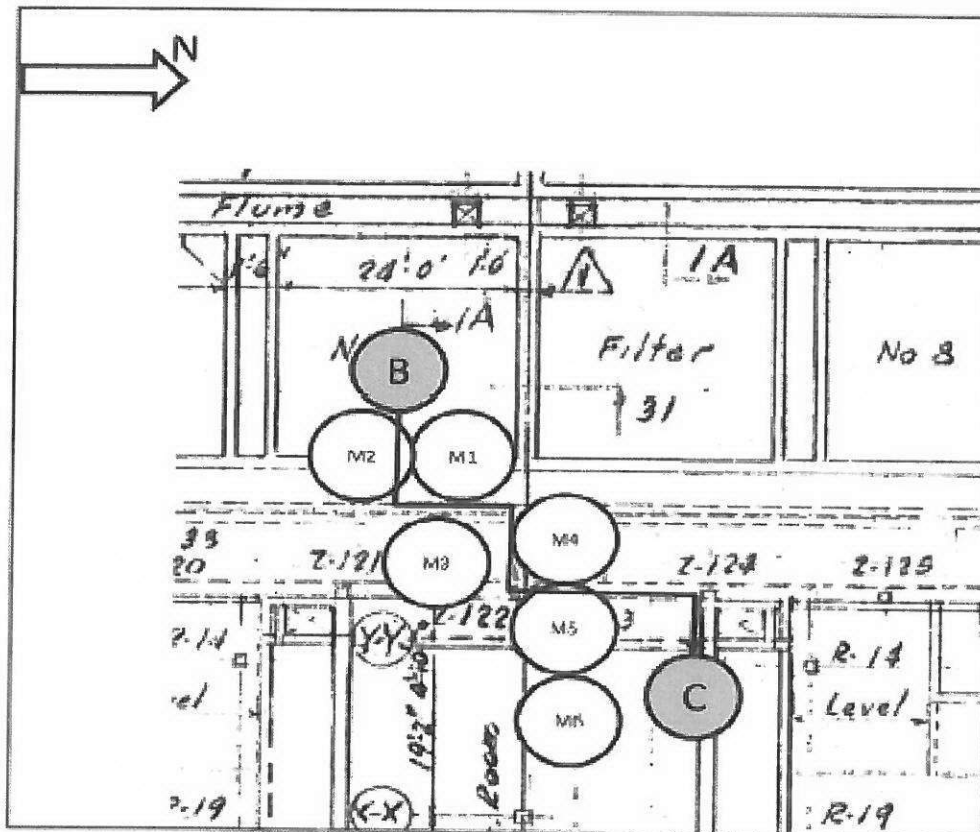


Item G2 – Corrosion on metal wall panels and presence of water

Item G3 – Evidence of biological hazard

ATTACHMENT C – PUMP ROOM PICTURES

Figure 2 - Pump Room Inspection Map



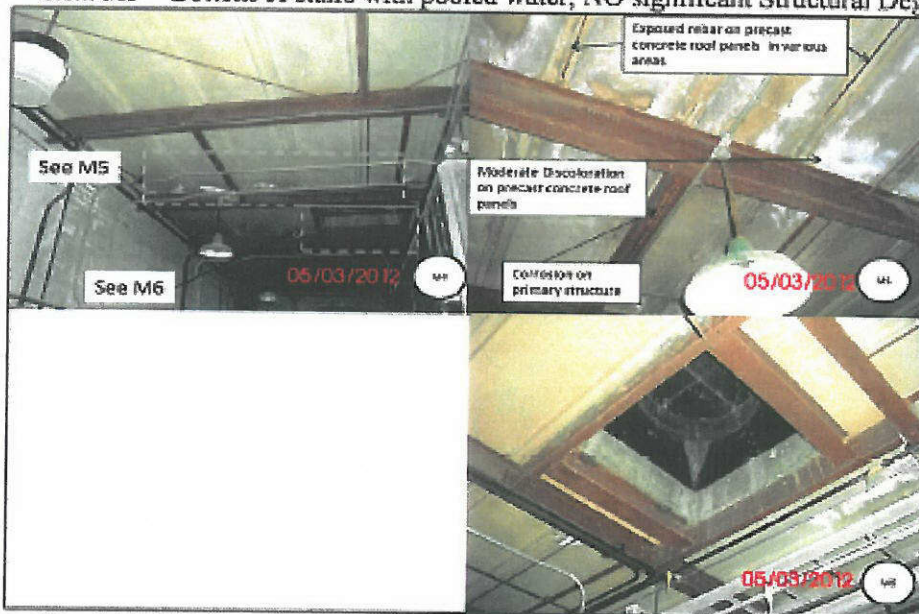
Reference Figure 2 for Locations



Item M1 – Structures and Components with NO significant Structural Degradation

Item M2 – Concrete Stair with NO significant Structural Degradation

Item M3 – Bottom of stairs with pooled water, NO significant Structural Degradation



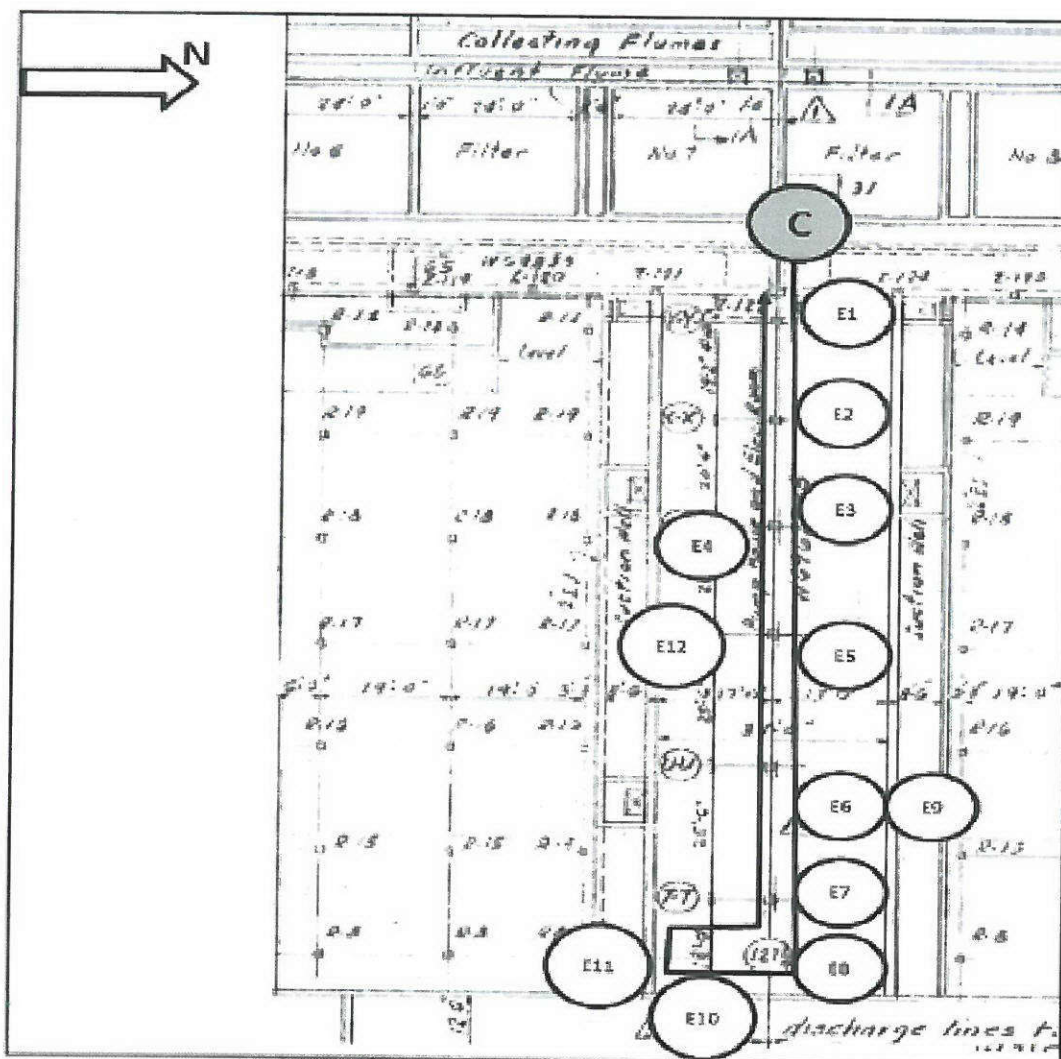
Item M4 – Roof area with minor discoloration, masonry walls have NO significant structural degradation

Item M5 – Metal Beams with moderate corrosion, exposed rebar, and discoloration

Item M6 – Penetration with NO significant structural degradation

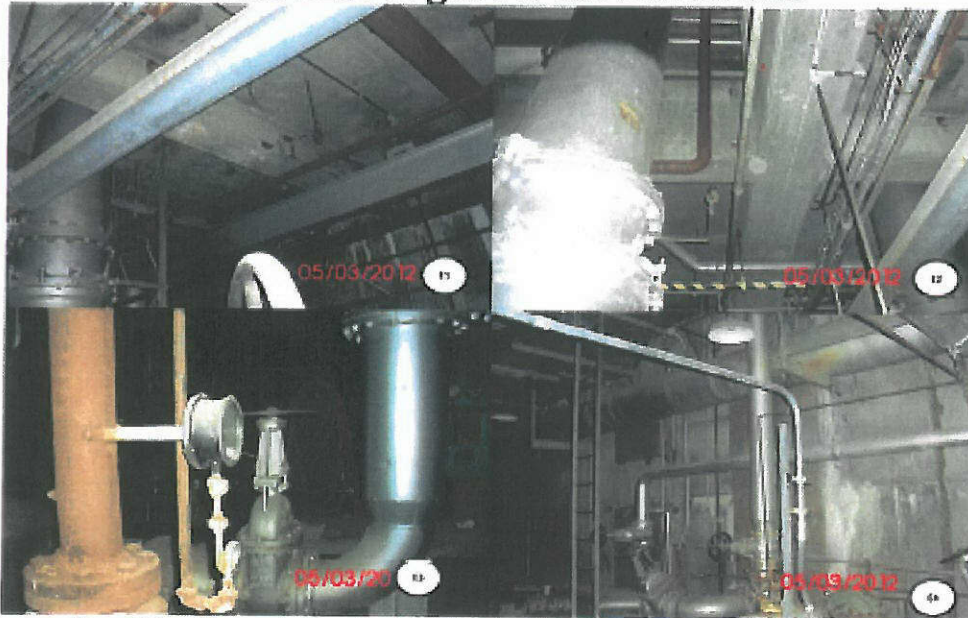
ATTACHMENT D – PUMP ROOM BASEMENT & ELECTRICAL SWITCHGEAR ROOM PICTURES

Figure 3 – Electrical Switchgear Room Inspection Map



D4 Project Facility Completion Form

Reference Figure 3 for Locations

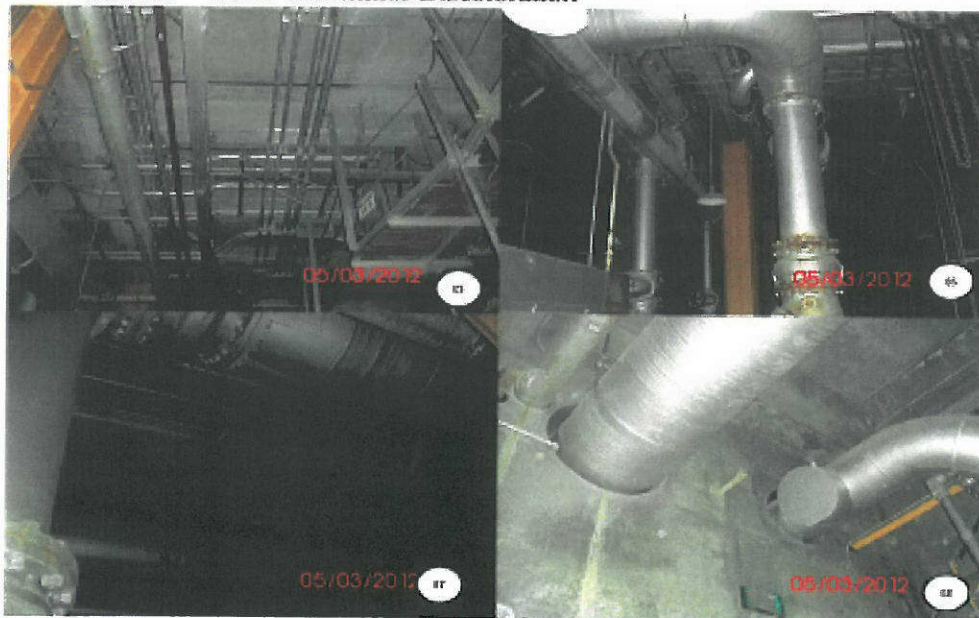


Item E1 – Concrete Roof with NO significant Structural Degradation

Item E2 – Concrete Beam with NO significant Structural Degradation

Item E3 – Structures and Components with NO significant Structural Degradation

Item E4 – Walls with minor Discoloration



Item E5 - Concrete Roof with NO significant Structural Degradation

Item E6 – Structures and Components with NO significant Structural Degradation

Item E7 – Concrete Roof with NO significant Structural Degradation

Item E8 – Wall with Pipe Penetrations with NO significant Structural Degradation

Reference Figure 3 for Locations



Item E9 - Concrete Roof Penetration with NO significant Structural Degradation

Item E10 - Metal Stairs NO significant Structural Degradation

Item E11 - Concrete Stairs and Entry Way with NO significant Structural Degradation (Note: Particulates in room)

Item E12 - Balcony with NO significant Structural Degradation

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ATTACHMENT E – 183D Evaluation Checklist



Washington Closure Hanford

183D Evaluation Checklist

Practitioner: P. Santos, P.E. Date Evaluated: 5/2/2013

Contact: WCH, Peral Drive, A200

Info: 362-9059
Engineering Services

LEGEND:

FE = Steel	CO = Corrosion	P = Pending
RC = Concrete	CR = Crack	DE = Deflection
MA = Masonry	SP = Spall	EX = Suspected Exting
WO = Wood	NA = No Visible Issues	MI = moisture intrusion
OT = Other	ST = Possible Settlement	WI = Possible Wind Damage
	CH = Corrosion Miscellaneous	

Surveillance & Maintenance Structural Inspection Sheet						
Item No.	Description	Area Location	Evaluation? (Y/N)	Material (FE/RC)	Condition (CO/CR/SP)	Notes/Causes: (P/DE/EX/MI/ST/WI/CH)
O1	Filter Room Masonry Wall	External Pathway	Intentionally left blank	RC	NA	Intentionally left Blank
O2	Concrete Walkway	External Pathway	Intentionally left blank	FE/RC	SP	CH
O3	Wood Stairs	External Pathway	Intentionally left blank	WO	OT	DE
O4	Concrete Walkway	External Pathway	Intentionally left blank	RC	CO, SP	CH
O5	Concrete Walkway	External Pathway	Intentionally left blank	RC	CO, SP	CH
O6	Concrete Walkway	External Pathway	Intentionally left blank	RC	CO, SP	CH
G1	Filter Room Concrete Pre-Cast Panel	Filter Room	Intentionally left blank	RC	CO, SP	P, DE, MI, CH
G2	Weld Wall Panels and Concrete Pathway	Filter Room	Intentionally left blank	FE, RC	CO	MI
G3	Concrete Walkway	Filter Room	Intentionally left blank		OT	Defaced
M1	Structures, Systems, and Components (SSCs)	Pump House Area	Intentionally left blank	FE	NA	Intentionally left Blank
M2	Concrete Stairs	Pump House Area	Intentionally left blank	RC	NA	Intentionally left Blank
M3	Concrete Stairs, Bottom Landing	Pump House Area	Intentionally left blank	RC	NA	MI
M4	Filter Room Concrete Pre-Cast Panel and Steel Primary Structures	Pump House Area	Intentionally left blank	RC, FE	Intentionally left Blank	Intentionally left Blank
M5	Filter Room Concrete Pre-Cast Panel and Steel Primary Structures	Pump House Area	Intentionally left blank	RC, FE	CO, SP	DE, MI, CH
M5	Roof Penetration	Pump House Area	Intentionally left blank	RC, FE	NA	Intentionally left Blank
B1	Concrete Beam	Pump House Basement & Electrical Room Area	Intentionally left blank	RC	NA	Intentionally left Blank
B2	Concrete Beam	Pump House Basement & Electrical Room Area	Intentionally left blank	RC	NA	Intentionally left Blank
B3	SSCs	Pump House Basement & Electrical Room Area	Intentionally left blank	FE	NA	Intentionally left Blank

05/03/2012

1

created by: P. Santos

D4 Project Facility Completion Form

WPCU		Washington Closure Hanford		183D Evaluation Checklist		
E4	Wall	Pump House Basement & Electrical Room Area	Intentionally left blank	RC	NA	(Intentionally left blank)
E5	Concrete Roof	Pump House Basement & Electrical Room Area	Intentionally left blank	RC	NA	(Intentionally left blank)
E6	SSCs	Pump House Basement & Electrical Room Area	Intentionally left blank	FE	NA	(Intentionally left blank)
E7	Concrete Roof	Pump House Basement & Electrical Room Area	Intentionally left blank	RC	NA	(Intentionally left blank)
E8	Wall with Pipe Penetrations	Pump House Basement & Electrical Room Area	Intentionally left blank	RC	NA	(Intentionally left blank)
E9	Roof Penetration	Pump House Basement & Electrical Room Area	Intentionally left blank	RC	NA	(Intentionally left blank)
E10	Weld Stairs	Pump House Basement & Electrical Room Area	Intentionally left blank	FE	NA	(Intentionally left blank)
E11	Concrete Stairs & Entry Way	Pump House Basement & Electrical Room Area	Intentionally left blank	RC	NA	(Intentionally left blank)
E12	Chimney	Pump House Basement & Electrical Room Area	Intentionally left blank	WD, RC, FE	NA	(Intentionally left blank)

D4 Project Facility Completion Form

Attachment 5

EPA Concurrence that work is in compliance with NESHAP requirements (2 pages)

D4 Project Facility Completion Form

Page 1 of 2

169028

^WCH Document Control

From: Strand, Christopher P
Sent: Tuesday, December 18, 2012 8:37 AM
To: ^WCH Document Control
Subject: FW: 183-D Asbestos Work Review

Please chron and enter into project record as "EPA Approval of 183-D Asbestos Abatement and Demolition."
Thanks,

Chris
554-2720

From: Pavitt.John@epamail.epa.gov [mailto:Pavitt.John@epamail.epa.gov]
Sent: Thursday, December 13, 2012 1:54 PM
To: Strand, Christopher P
Cc: Faulk.Dennis@epamail.epa.gov; Gadbois.Larry@epamail.epa.gov; Guercia, Rudolph F; Guzzetti.Christopher@epamail.epa.gov
Subject: RE: 183-D Asbestos Work Review

Chris, I've reviewed the asbestos surveys and your workplan for demolition of Building 183-D which has been found to be structurally unsound.

Base on this information, plus my on site observations in August, I am satisfied that your approach is in compliance with asbestos NESHAP requirements.

Good luck with your project.

John Pavitt
US EPA, Region 10, Alaska Operations Office
(907) 271-3688
(907) 271-3424 (Fax)

"Strand, Christopher P" —12/13/2012 10:35:49 AM—John, With Dennis out of the office, I just wanted to check with you and see

From: "Strand, Christopher P" <cpstrand@wch.nrc.com>
To: Dennis Faulk/R10/USEPA/US@EPA, "Guercia, Rudolph F" <rudolph.guercia@it.doe.gov>, Larry Gadbois/R10/USEPA/US@EPA, John Pavitt/R10/USEPA/US@EPA
Date: 12/13/2012 10:35 AM
Subject: RE: 183-D Asbestos Work Review

John,

With Dennis out of the office, I just wanted to check with you and see if all of the 183-D information was received from your end. The files were large and had to be split up into several messages. Also, if there is anything else you need from our end to aid in your evaluation, do not hesitate to contact us.

Thank you,

Chris

12/18/2012

D4 Project Facility Completion Form

Page 2 of 2

554-2720

From: Strand, Christopher P
Sent: Tuesday, December 04, 2012 3:47 PM
To: Faulk, Dennis A; Guerra, Rudolph F; Gadbois, Larry E; 'pavitt.john@epa.gov'
Subject: 183-D Asbestos Work Review

All,

I apologize in advance as I was made aware that one of the four messages (same subject) did not make it through last Wednesday, November 28th. You should have received three previous messages to date that transmitted the structural evaluation, and two portions (first and third) of the asbestos inspection report. Attached to this message is the second third of the asbestos inspection report. If this remains confusing, please let me know and I can have hard copies of the report mailed to each of you.

Thanks,

Chris
554-2720

<< File: 2038551_Part2.pdf >>

12/18/2012

D4 Project Facility Completion Form

Attachment 6

183D GPS Surveys (9 pages)

D4 Project Facility Completion Form

0631585

Pre Demo GPS Survey For the 183D Building

Project : 183Dpredemo

Job 1171

User name	maaye	Date & Time	4:35:52 PM 10/31/2011
Coordinate System	US State Plane 1983	Zone	Washington South 4602
Project Datum	NAD 1983 (Conus)		
Vertical Datum	NAVD88	Geoid Model	GEOID99 (Conus)
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name:	Pre-Demolition Survey for 183D Building
Date:	10/27/2011
Equipment:	5800
Survey Purpose:	Map the building corners
Requested By:	Jack Danley
Location:	100D
Charge Code:	01.01.0183D01000
Field Surveyor:	Margo Aye
Survey Software Used:	Trimble Survey Controller, and Geomatics Office V.11
Survey Equipment Used:	5800
Control Monuments Used:	D-2
Survey Method:	RTK
Horizontal Precision:	.020m
Vertical Precision:	.050m
Fieldwork Start Date:	10/27/11
Fieldwork Completion Date:	10/27/11

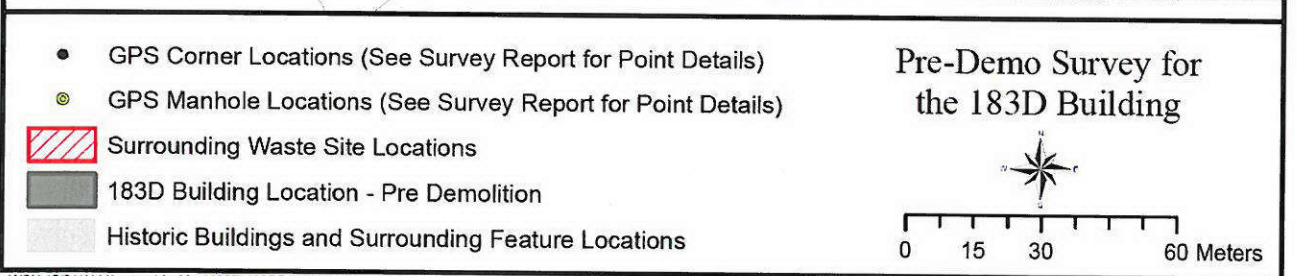
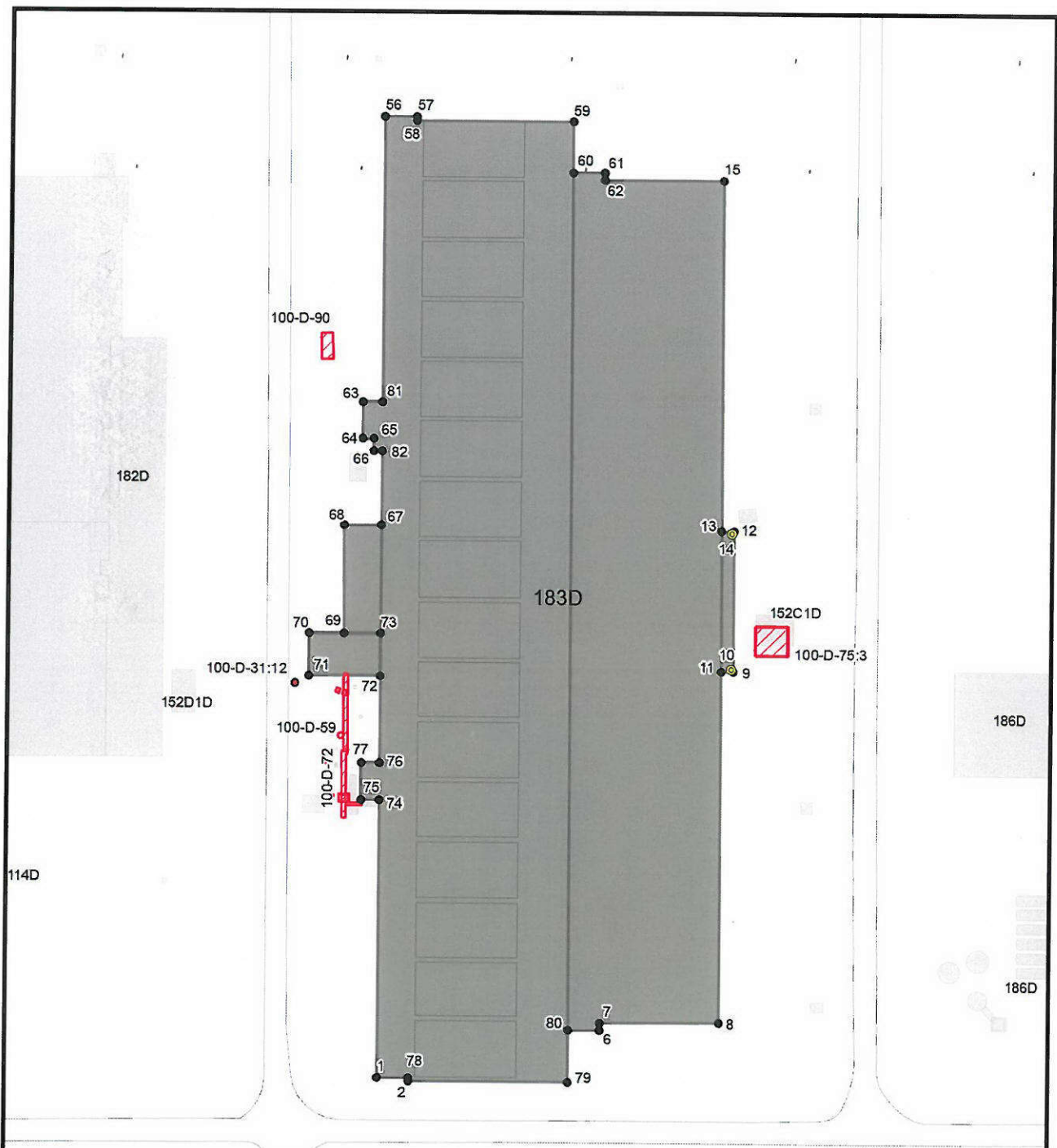
Notes: Some corner coordinates were generated by mapping offsets of the corners then using COGO coordinate geometry to calculate corner location (point names start with "A"). Points 58,59,60,61 were created using aerial photography, as that end of the building was inaccessible

Name	Northing	Easting	Elevation	Feature Code	Notes:
1	151459.156m	573261.286m	167.682m	at corner	
2	151458.334m	573269.877m	167.703m	at corner	
3	151456.304m	573313.091m	165.087m	corner-offset	
4	151458.294m	573315.026m	165.179m	corner-offset	
5	151472.297m	573314.790m	165.150m	roof-offset6ft	
6	151472.404m	573321.539m	164.994m	roof-corner	
7	151474.478m	573321.556m	165.048m	roof-corner	
8	151474.560m	573354.091m	164.741m	roof-corner	
9	151570.214m	573357.199m	164.727m	corn-conc-pad	
10	151570.724m	573356.618m	164.854m	mh	
11	151570.099m	573353.891m	164.762m	corn-conc	
12	151608.314m	573357.163m	164.707m	corn-conc	
13	151608.267m	573353.735m	164.711m	corn-conc	
14	151607.613m	573356.549m	164.834m	mh	
15	151703.716m	573353.536m	164.740m	corner-roof	
16	151456.957m	573328.082m	165.616m	monument	
17	151534.758m	573250.188m	165.784m	corner-offset	
18	151529.546m	573256.319m	166.111m	corner-offset	
19	151544.855m	573248.157m	166.028m	corner-offset	
21	151567.099m	573241.803m	165.895m	corner-offset	
22	151568.470m	573239.083m	165.872m	corner-offset	
23	151566.081m	573247.256m	165.922m	corner-offset	
24	151579.998m	573237.126m	165.728m	corner-offset	
25	151562.524m	573251.477m	165.948m	corner-offset1	
26	151616.227m	573251.197m	165.921m	corner-offset1	
27	151609.339m	573248.065m	165.884m	corner-offset1	
28	151632.966m	573253.640m	166.201m	corner-offset	
29	151630.210m	573255.980m	166.193m	corner-offset	
30	151629.644m	573256.095m	166.173m	corner-offset	
31	151628.777m	573259.143m	166.541m	corner-offset	
32	151647.972m	573256.012m	165.582m	corner-offset	

D4 Project Facility Completion Form

33	151642.961m	573252.714m	165.789m	corner-offset
34	151720.662m	573253.940m	165.110m	corner-offset
56	151720.656m	573261.286m	0.000m	calc-corner
57	151720.662m	573269.981m	0.000m	used aerial
58	151719.656m	573269.981m	0.000m	used aerial
59	151719.528m	573312.414m	0.000m	used aerial
60	151705.659m	573312.450m	0.000m	used aerial
61	151705.659m	573321.054m	0.000m	used aerial
62	151703.634m	573321.054m	0.000m	used aerial
63	151642.961m	573256.003m	0.000m	calc-corner
64	151632.966m	573255.985m	0.000m	calc-corner
65	151632.966m	573259.143m	0.000m	calc-corner
66	151629.644m	573259.143m	0.000m	calc-corner
67	151609.339m	573261.286m	0.000m	calc-corner
68	151609.339m	573251.233m	0.000m	calc-corner
69	151579.998m	573251.386m	0.000m	calc-corner
70	151579.998m	573241.803m	0.000m	calc-corner
71	151568.470m	573241.803m	0.000m	calc-corner
72	151568.470m	573261.286m	0.000m	calc-corner
73	151579.998m	573261.286m	0.000m	calc-corner
74	151534.758m	573261.286m	0.000m	calc-corner
75	151534.758m	573256.319m	0.000m	calc-corner
76	151544.855m	573261.286m	0.000m	calc-corner
77	151544.855m	573256.319m	0.000m	calc-corner
78	151459.156m	573269.877m	0.000m	calc-corner
79	151458.296m	573313.091m	0.000m	calc-corner
80	151472.312m	573313.091m	0.000m	calc-corner
81	151642.961m	573261.286m	0.000m	calc-corner
82	151629.644m	573261.286m	0.000m	calc-corner
A10	151459.156m	573270.285m	?	COGO offset
A11	151460.334m	573269.877m	?	COGO offset
A12	151579.998m	573247.125m	?	COGO offset
A13	151633.777m	573259.143m	?	COGO offset
A14	151629.644m	573261.594m	?	COGO offset
A15	151632.966m	573261.339m	?	COGO offset
A16	151642.961m	573261.713m	?	COGO offset
A17	151544.855m	573261.656m	?	COGO offset
A18	151534.758m	573262.687m	?	COGO offset
A20	151544.845m	573256.319m	?	COGO offset
A22	151568.470m	573252.082m	?	COGO offset
A23	151579.998m	573252.124m	?	COGO offset
A25	151582.098m	573241.803m	?	COGO offset
A26	151568.470m	573262.081m	?	COGO offset
A27	151579.998m	573267.123m	?	COGO offset
A28	151609.339m	573263.064m	?	COGO offset
A3	151720.609m	573313.935m	?	COGO offset
A5	151729.134m	573261.286m	?	COGO offset
A6	151726.281m	573313.091m	?	COGO offset
A7	151472.287m	573310.790m	?	COGO offset
A8	151703.603m	573308.540m	?	COGO offset

[Back to top](#)



WCH:10/31/11:V:\maayel\ArcMap\100D\183DPre-demo.mxd, 4:16:47 PM

D4 Project Facility Completion Form

Post Demo Survey Report for 183D

Project : 183_post

Job 1263

User name	maaye	Date & Time	10:14:52 AM 12/2/2013
Coordinate System	US State Plane 1983	Zone	Washington South 4602
Project Datum	NAD 1983 (Conus)		
Vertical Datum		Geoid Model	Not selected
Coordinate Units	Meters		
Distance Units	Meters		
Height Units	Meters		

Survey Project Name: Post Demo Survey for 183D
 Date: 11/25/2013
 Equipment: 5800
 Survey Purpose: Map the post demo excavation for 183D
 Requested By: Mark Allen
 Location: 100D
 Charge Code:
 Field Surveyor: Margo Aye
 Survey Software Used: Trimble Survey Controller, and Geomatics Office V.11
 Survey Equipment Used: 5800
 Control Monuments Used: D-2
 Survey Method: RTK
 Horizontal Precision: .020m
 Vertical Precision: .050m
 Fieldwork Start Date: 11/20/13
 Fieldwork Completion Date: 11/21/13
 Notes:

Name	Northing	Easting	Elevation	Feature Code	Description
1	151625.786m	573236.923m	143.866m	daylight	
2	151612.651m	573238.864m	143.832m	daylight	
3	151598.745m	573238.815m	143.891m	daylight	
4	151585.178m	573241.619m	142.969m	daylight	
5	151573.126m	573240.878m	142.979m	daylight-toe	
6	151571.694m	573242.179m	142.886m	daylight-toe	
7	151572.698m	573247.939m	142.679m	toe	
8	151567.006m	573251.221m	143.247m	daylight-topo	
9	151566.997m	573242.696m	144.327m	daylight-topo	
10	151551.333m	573243.455m	144.406m	daylight-topo	
11	151536.307m	573243.601m	144.222m	daylight-topo	
12	151511.993m	573237.926m	144.163m	daylight-topo	
13	151489.375m	573246.136m	143.933m	daylight-topo	
14	151479.988m	573255.452m	143.712m	daylight-topo	
15	151466.072m	573256.756m	143.716m	daylight-topo	
16	151452.468m	573260.455m	144.029m	daylight-topo	
17	151452.162m	573272.927m	144.016m	daylight-topo	
18	151453.227m	573286.028m	144.253m	daylight-topo	
19	151453.173m	573301.630m	143.915m	daylight-topo	
20	151453.831m	573309.043m	143.665m	daylight-topo	
21	151465.285m	573316.740m	143.810m	daylight-topo	
22	151467.281m	573328.975m	143.574m	daylight-topo	
23	151469.563m	573338.985m	143.354m	daylight-topo	
24	151472.711m	573352.615m	142.540m	daylight-topo	
25	151478.752m	573364.318m	143.058m	daylight-topo	
26	151490.821m	573366.642m	143.060m	daylight-topo	
27	151504.376m	573367.308m	143.319m	daylight-topo	
28	151523.378m	573367.493m	143.291m	daylight-topo	
29	151535.680m	573368.443m	143.377m	daylight-topo	
30	151543.941m	573377.777m	143.425m	daylight-topo	
31	151552.675m	573369.006m	143.079m	daylight-topo	
32	151577.863m	573372.930m	143.072m	daylight-topo	
33	151594.230m	573372.269m	143.001m	daylight-topo	

D4 Project Facility Completion Form

34	151606.954m	573370.820m	143.157m	daylight-topo
35	151610.176m	573378.739m	143.297m	daylight-topo
36	151619.556m	573381.834m	143.483m	daylight-topo
37	151621.483m	573366.334m	143.384m	daylight-topo
38	151619.666m	573363.246m	143.420m	daylight-topo
39	151618.614m	573356.363m	143.333m	daylight-topo
40	151637.222m	573371.614m	143.497m	daylight-topo
41	151641.799m	573370.618m	143.392m	daylight-topo
42	151645.635m	573371.502m	143.294m	daylight-topo
43	151648.502m	573374.757m	143.419m	daylight-topo
44	151648.120m	573381.257m	143.576m	daylight-topo
45	151645.451m	573384.315m	143.581m	daylight-topo
46	151640.051m	573384.977m	143.478m	daylight-topo
47	151635.885m	573382.844m	143.574m	daylight-topo
48	151634.767m	573378.556m	143.550m	daylight-topo
49	151635.669m	573374.628m	143.508m	daylight-topo
50	151707.135m	573314.873m	143.729m	daylight-topo
51	151714.340m	573314.277m	143.631m	daylight-topo
52	151722.318m	573312.224m	143.344m	daylight-topo
53	151723.663m	573305.253m	143.141m	daylight-topo
54	151725.309m	573300.495m	142.993m	daylight-topo
55	151734.598m	573302.818m	143.226m	daylight-topo
56	151742.303m	573298.855m	143.343m	daylight-topo
57	151745.388m	573287.027m	143.259m	daylight-topo
58	151745.845m	573276.166m	143.185m	daylight-topo
59	151746.930m	573264.054m	143.046m	daylight-topo
60	151747.119m	573243.660m	143.051m	daylight-topo
61	151732.082m	573242.080m	143.070m	daylight-topo
62	151731.821m	573254.369m	142.851m	daylight-topo
63	151731.478m	573266.787m	142.783m	daylight-topo
64	151729.789m	573278.832m	142.705m	daylight-topo
65	151727.918m	573289.245m	142.940m	daylight-topo
66	151717.067m	573294.432m	142.663m	daylight-topo
67	151704.333m	573300.738m	142.188m	daylight-topo
68	151703.125m	573290.643m	142.270m	daylight-topo
69	151702.927m	573280.482m	142.106m	daylight-topo
70	151704.649m	573267.735m	142.162m	daylight-topo
71	151706.602m	573256.349m	142.761m	daylight-topo
72	151707.506m	573240.287m	143.266m	daylight-topo
73	151691.736m	573239.053m	143.181m	daylight-topo
74	151690.170m	573251.397m	142.709m	daylight-topo
75	151690.821m	573262.647m	142.036m	daylight-topo
76	151691.470m	573276.569m	142.001m	daylight-topo
77	151692.614m	573289.586m	142.155m	daylight-topo
78	151692.278m	573299.792m	141.739m	daylight-topo
79	151680.244m	573298.664m	141.589m	daylight-topo
80	151680.340m	573287.969m	142.070m	daylight-topo
81	151679.380m	573276.193m	141.952m	daylight-topo
82	151680.702m	573263.161m	142.150m	daylight-topo
83	151681.891m	573252.086m	142.981m	daylight-topo
84	151680.439m	573237.700m	143.491m	daylight-topo
85	151668.033m	573236.270m	143.667m	daylight-topo
86	151659.498m	573238.150m	143.819m	daylight-topo
87	151659.454m	573244.964m	143.733m	daylight-topo
88	151667.975m	573249.574m	143.479m	daylight-topo
89	151668.337m	573258.032m	142.601m	daylight-topo
90	151671.515m	573267.917m	141.648m	daylight-topo
91	151672.528m	573279.257m	141.925m	daylight-topo
92	151672.680m	573292.265m	142.048m	daylight-topo
93	151672.018m	573299.023m	141.615m	daylight-topo
94	151661.560m	573298.597m	141.778m	daylight-topo
95	151663.497m	573289.092m	141.948m	daylight-topo
96	151661.473m	573278.593m	141.834m	daylight-topo
97	151660.936m	573269.525m	141.691m	daylight-topo
98	151659.938m	573260.916m	142.470m	daylight-topo
99	151657.891m	573250.604m	143.828m	daylight-topo
100	151650.969m	573242.998m	143.804m	daylight-topo
101	151649.360m	573252.388m	143.647m	daylight-topo
102	151649.073m	573259.929m	142.527m	daylight-topo
103	151648.955m	573270.830m	141.650m	daylight-topo
104	151649.722m	573282.435m	141.797m	daylight-topo

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105	151550.346m	573298.200m	141.705m	daylight-topo
106	151629.894m	573298.471m	141.737m	daylight-topo
107	151529.909m	573298.672m	142.055m	daylight-topo
108	151630.621m	573290.144m	141.968m	daylight-topo
109	151540.263m	573289.252m	141.858m	daylight-topo
110	151640.925m	573279.429m	141.718m	daylight-topo
111	151541.995m	573268.177m	141.706m	daylight-topo
112	151641.156m	573255.772m	143.086m	daylight-topo
113	151641.253m	573243.515m	143.877m	daylight-topo
114	151640.031m	573234.996m	144.020m	daylight-topo
115	151632.580m	573237.291m	143.879m	daylight-topo
116	151536.543m	573245.615m	143.674m	daylight-topo
117	151637.595m	573255.816m	142.967m	daylight-topo
118	151637.971m	573266.252m	141.935m	daylight-topo
119	151634.499m	573274.978m	141.545m	daylight-topo
120	151631.074m	573282.895m	141.798m	daylight-topo
121	151623.730m	573298.882m	142.019m	daylight-topo
122	151625.451m	573285.798m	141.894m	daylight-topo
123	151626.468m	573275.541m	141.723m	daylight-topo
124	151625.460m	573262.912m	141.980m	daylight-topo
125	151625.334m	573249.759m	143.034m	daylight-topo
126	151616.884m	573247.671m	143.003m	daylight-topo
127	151617.788m	573256.177m	142.424m	daylight-topo
128	151615.922m	573264.900m	142.098m	daylight-topo
129	151615.610m	573278.422m	141.868m	daylight-topo
130	151614.847m	573288.622m	141.964m	daylight-topo
131	151612.070m	573298.967m	141.602m	daylight-topo
132	151603.148m	573297.965m	141.585m	daylight-topo
133	151604.021m	573288.547m	142.017m	daylight-topo
134	151604.396m	573278.005m	141.908m	daylight-topo
135	151605.952m	573263.569m	142.444m	daylight-topo
136	151607.134m	573252.037m	142.882m	daylight-topo
137	151597.781m	573247.740m	143.251m	daylight-topo
138	151597.096m	573258.038m	142.546m	daylight-topo
139	151595.463m	573267.486m	142.514m	daylight-topo
140	151594.904m	573275.154m	142.004m	daylight-topo
141	151595.046m	573284.513m	142.189m	daylight-topo
142	151594.408m	573297.751m	141.963m	daylight-topo
143	151585.711m	573297.137m	142.302m	daylight-topo
144	151585.656m	573286.496m	142.386m	daylight-topo
145	151586.123m	573276.356m	142.112m	daylight-topo
146	151586.634m	573267.343m	142.364m	daylight-topo
147	151584.498m	573259.645m	142.574m	daylight-topo
148	151585.049m	573249.065m	142.898m	daylight-topo
149	151576.275m	573260.079m	142.673m	daylight-topo
150	151576.760m	573267.817m	142.201m	daylight-topo
151	151576.508m	573280.154m	142.272m	daylight-topo
152	151575.975m	573297.482m	142.492m	daylight-topo
153	151572.849m	573296.642m	142.454m	daylight-topo
154	151564.967m	573287.032m	142.330m	daylight-topo
155	151564.841m	573287.032m	142.256m	daylight-topo
156	151564.975m	573279.294m	142.032m	daylight-topo
157	151564.422m	573268.943m	141.970m	daylight-topo
158	151563.446m	573259.123m	142.870m	daylight-topo
159	151553.818m	573259.640m	142.988m	daylight-topo
160	151553.194m	573267.786m	142.188m	daylight-topo
161	151552.084m	573276.126m	141.898m	daylight-topo
162	151550.983m	573286.243m	142.114m	daylight-topo
163	151550.892m	573296.867m	142.103m	daylight-topo
164	151549.021m	573290.111m	142.257m	daylight-topo
165	151548.225m	573284.148m	142.077m	daylight-topo
166	151545.096m	573279.871m	142.047m	daylight-topo
167	151544.860m	573272.365m	141.964m	daylight-topo
168	151546.501m	573263.039m	142.523m	daylight-topo
169	151546.714m	573252.832m	143.392m	daylight-topo
170	151535.526m	573252.776m	143.276m	daylight-topo
171	151535.390m	573261.976m	142.475m	daylight-topo
172	151534.369m	573270.351m	142.040m	daylight-topo
173	151532.757m	573282.032m	142.130m	daylight-topo
174	151532.129m	573292.769m	142.429m	daylight-topo
175	151529.531m	573296.040m	142.403m	daylight-topo

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176	151525.346m	573295.736m	142.481m	daylight-topo
177	151526.048m	573288.255m	142.251m	daylight-topo
178	151527.525m	573279.258m	142.060m	daylight-topo
179	151528.273m	573269.029m	142.129m	daylight-topo
180	151529.817m	573259.753m	142.753m	daylight-topo
181	151519.106m	573250.179m	143.647m	daylight-topo
182	151517.612m	573259.449m	143.016m	daylight-topo
183	151515.901m	573267.570m	141.985m	daylight-topo
184	151515.860m	573271.101m	141.799m	toe
185	151505.235m	573270.770m	141.874m	toe
186	151494.541m	573269.901m	142.053m	toe
187	151483.605m	573270.266m	142.271m	toe
188	151474.908m	573271.368m	142.384m	toe
189	151465.248m	573271.551m	142.416m	toe
190	151458.138m	573265.797m	142.671m	toe
191	151455.849m	573267.383m	142.625m	toe
192	151456.515m	573272.333m	142.448m	toe
193	151456.978m	573280.526m	142.617m	toe
194	151458.471m	573289.386m	142.603m	toe
195	151459.470m	573297.330m	142.122m	toe
196	151468.379m	573297.670m	142.289m	topo
197	151464.701m	573290.648m	142.508m	topo
198	151463.671m	573281.018m	142.508m	topo
199	151472.664m	573277.588m	142.393m	topo
200	151473.355m	573285.505m	142.361m	topo
201	151474.506m	573292.598m	142.421m	topo
202	151477.451m	573297.933m	142.369m	topo
203	151483.384m	573297.829m	142.181m	topo
204	151480.137m	573290.782m	142.165m	topo
205	151479.193m	573282.657m	142.318m	topo
206	151488.157m	573280.108m	142.295m	topo
207	151488.986m	573287.900m	142.286m	topo
208	151490.761m	573297.577m	141.983m	topo
209	151496.615m	573297.169m	141.983m	topo
210	151496.001m	573287.964m	142.233m	topo
211	151496.244m	573278.590m	142.172m	topo
212	151506.886m	573278.114m	142.057m	topo
213	151507.376m	573285.933m	142.123m	topo
214	151507.626m	573296.975m	142.222m	topo
215	151514.907m	573296.591m	142.222m	topo
216	151514.536m	573287.746m	142.143m	topo
217	151515.252m	573279.312m	142.026m	topo
218	151560.065m	573269.632m	142.094m	toe
219	151572.417m	573273.006m	141.918m	toe
220	151586.581m	573273.631m	142.034m	toe
221	151602.766m	573274.349m	141.981m	toe
222	151619.047m	573273.477m	141.781m	toe
223	151634.270m	573273.473m	141.492m	toe
224	151651.792m	573272.722m	141.554m	toe
225	151667.399m	573271.762m	141.591m	toe
226	151685.009m	573270.406m	141.803m	toe
227	151699.362m	573269.165m	141.988m	toe
228	151714.455m	573267.816m	142.300m	toe
229	151724.844m	573268.718m	142.518m	toe
230	151676.938m	573259.884m	142.214m	cut-dike-201m
232	151473.510m	573352.901m	142.616m	top
233	151492.040m	573332.145m	137.942m	floor
234	151494.407m	573344.443m	137.970m	floor-toe
235	151530.210m	573344.339m	137.935m	floor-toe
237	151530.950m	573327.768m	137.929m	floor
238	151552.331m	573328.549m	137.922m	floor
239	151553.829m	573344.023m	137.922m	floor-toe
240	151564.957m	573344.269m	137.931m	floor-toe
241	151580.780m	573344.029m	137.919m	floor-toe
242	151581.252m	573343.843m	139.133m	corner-ledge
243	151580.835m	573337.417m	137.931m	ledge
244	151580.964m	573325.741m	137.926m	ledge
245	151580.715m	573315.203m	137.931m	ledge
246	151576.607m	573318.763m	137.928m	floor-toe
247	151567.467m	573318.603m	137.935m	floor-toe

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248	151548.976m	573318.635m	137.932m	floor-toe
249	151529.883m	573318.691m	137.941m	floor-toe
250	151508.926m	573318.770m	137.937m	floor-toe
251	151484.751m	573319.140m	137.959m	floor-toe
252	151484.683m	573327.651m	137.970m	floor-toe
253	151483.882m	573331.876m	138.146m	floor-toe
254	151479.291m	573355.150m	141.927m	floor-toe-ramp
255	151491.447m	573356.151m	141.784m	top
256	151507.337m	573356.513m	141.710m	top
257	151520.548m	573356.353m	141.591m	top
258	151535.431m	573355.942m	141.673m	top
259	151534.799m	573353.917m	142.508m	ledge-top
260	151552.549m	573355.724m	142.313m	top
261	151559.026m	573355.779m	142.429m	top
262	151568.103m	573359.932m	141.520m	cut-pipe-end-4ft
263	151567.093m	573354.655m	140.346m	top
264	151571.180m	573355.003m	139.850m	top-toe
265	151580.340m	573354.625m	139.636m	top-toe
266	151588.552m	573354.264m	139.613m	top-toe
267	151593.833m	573354.685m	139.806m	top-toe
268	151595.967m	573363.173m	142.890m	top
269	151605.156m	573363.483m	142.938m	top
270	151605.471m	573362.920m	142.776m	cut-vert-14in-pipe
271	151536.796m	573371.787m	143.440m	top
272	151534.876m	573371.988m	143.414m	top
273	151529.538m	573371.794m	143.516m	top
274	151527.663m	573374.663m	143.466m	top
275	151527.802m	573378.586m	143.450m	top
276	151529.911m	573381.214m	143.433m	top
277	151534.506m	573381.241m	143.414m	top
278	151538.001m	573379.667m	143.479m	top
279	151537.759m	573376.068m	143.490m	top
280	151473.915m	573354.060m	142.561m	top-corner
281	151458.305m	573309.124m	143.040m	top-corner-slab
282	151471.565m	573309.342m	143.047m	top-slab
283	151461.451m	573306.772m	141.877m	topo
284	151461.619m	573306.857m	141.808m	topo
285	151473.899m	573307.954m	142.167m	topo
286	151477.104m	573308.869m	143.002m	top-wall
287	151485.975m	573306.598m	141.927m	topo
288	151489.669m	573306.253m	142.766m	topo
289	151505.885m	573306.165m	142.792m	topo
290	151526.960m	573302.526m	142.519m	topo
291	151538.863m	573304.379m	142.686m	top-slab
292	151545.845m	573303.360m	142.091m	topo
293	151560.217m	573302.577m	142.179m	topo
294	151567.517m	573304.263m	142.681m	topo
295	151583.920m	573304.174m	142.719m	top-slab
296	151590.165m	573301.148m	142.067m	topo
297	151599.793m	573300.256m	141.702m	topo
298	151466.856m	573326.379m	143.688m	topo
299	151665.068m	572745.686m	142.867m	gpl

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D4 Project Facility Completion Form

